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Readers in search of a given subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such for instance as Brain and Cerebral, Heart and Cardiac, Liver and Hepatic, Child and Infant, Goitre and Thyroid, Diabetes Glycosuria and Sugar, Eye, Ophthalmic, and Vision Lunacy and Mental Disease, Arsenobenzol and Salvarsan, &c , &c , and that regional headings are more frequently used than pathological Institutions and Corporations with the right to the prefix Royal will be found under that prefix, with the exception of Hospitals, which will be found under that heading, and Medical Societies, which are separately indexed under Societies All Universities are indexed under the word University (A) = Annotation, (C) = Correspondence (N I) = New Inventions, (L A) = Leading Article, (M L) = Medico-legal, (M T T) = Modern Technique in Treatment, (O) = Obituary (P I) = Parliamentary Intelligence, (R) = Review, (R and A R) = Reports and Analytical Records, and (C M P) = Conduct of Medical Practice

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Purvis Oration

ON

PROGNOSIS.

Delivered on Dec 10th before the West Kent Medico-Chirurgical Society

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OF the three great divisions of practical medicine—diagnosis, prognosis, and treatment—prognosis is certainly the most difficult It demands as much knowledge and power of observation as diagnosis, and even more experience and judgment Experience, indeed, is, perhaps, what the prognostician requires most of all "When old experience doth attain to something like prophetic strain," for the ability accurately to foretell the course of a disease can only be acquired by watching a large number of cases throughout their whole course In this respect the family practitioner is much more fortunately placed than the consultant, for, as Sir Andrew Clark remarked, "if a consultant cures a patient the latter rarely returns to him; if he fails to cure, the patient never does" Even the hospital physician finds it very difficult to watch his cases to the end. As a rule he sees only one segment of the orbit of the disease, and that is all; of what went before and what followed after he knows nothing. The more general introduction of follow-up departments, such as some of the surgeons have started, would do much to remedy this defect. but even a large experience in prognosis may be rendered useless by changes in the type of disease or by the introduction of new methods of treatment Scarlatina, for example, is a much milder disease than it was a generation or two ago, and its prognosis proportionately better, whereas in the case of measles the exact opposite is true, whilst the discovery of insulin has entirely altered the prognosis in diabetes

Perhaps because of the inherent difficulties of the subject, prognosis has been less carefully studied than either diagnosis or treatment, and I know of no really good book upon it in the English language; indeed, until comparatively recently there was no book of any kind devoted entirely to prognosis since the Hippocratic writings, and by prognosis Hippocrates meant, of course, something wider than we mean by it now. There is, it is true, a great deal of material, statistical and other, bearing upon the prognosis of particular diseases scattered through current medical literature, but very little of it has found its way into the text-books, and any young physician who was prepared to devote a lifetime to the collection of his facts and observations might in his later years produce a really good treatise on prognosis which would make the whole profession his debtor.

In spite, however, of the difficulties of the subject, it is certainly a good mental training to try to form as accurate a forecast as one can of the course of every case of serious disease which one has to deal with, even although the event will inevitably falsify one's anticipations with disappointing frequency.

Prognosis, rightly understood, is not merely a question of telling whether a patient will survive or not—"immediate" prognosis, as it is called. It is much wider than that It should include the consideration of how long life is likely to be prolonged, and, in the event of a fatal issue, the mode of death, or, if recovery is anticipated, when it will take place, whether it will be complete, at what period the patient will be fit for work, and so forth, all of which considerations may be grouped under the term "remote" prognosis It includes, in short, a complete foreknowledge of the whole course of events

In practice one has to form a prognosis in three sets of circumstances, each governed by different conditions. (1) Where the question of the expectation of life or health arises in persons presumably healthy; (2) in acute self-limited disease, (3) in chronic disease, whether curable or inevitably progressive We may consider the prognostic indications in each of these circumstances separately

PROGNOSIS IN THE HEALTHY

Prognosis in the presumably healthy is the essential business of the examiner for life assurance, and its object is to forecast as accurately as possible how long the individual is likely to live One cannot, of course, allow for all "the changes and chances of this mortal life," but some considerations are of special importance First of these, naturally, is the subject's present age and also, seeing that longevity is largely a matter of heredity, the age at death of his immediate relatives Nothing, in fact, contributes so much to length of days as a wise choice of ancestors Much importance, too, will be attached to occupation and habits On the other hand, questions of build and physique are probably of much less moment than is usually supposed. Pale, weedy subjects often potter on to a green old age, improving in health as they go, whilst the florid and muscular succumb in middle life to acute disease or a cerebral hæmorrhage Thin people are better lives than fat, for the more rotund the figure the more rapidly does one roll down the hill of life The state of the chief organs will rightly demand attention, especially the condition of the heart and arteries, the height of the blood pressure, the presence or absence of emphysema, and the efficiency of the kidneys Functional dyspepsia, however, is no bar to long life, indeed, rather the reverse. On one very important matter bearing upon life expectation it is, unfortunately, difficult to form an opinion unless one happens to be the patient's family doctor—I mean the capacity of "resistance" to acute infections. The general appearance of the subject is no guide here: Healthy-seeming, robust individuals, indeed, often offer much less "resistance" than those of a more fragile type, except, perhaps, to infection by tuberculosis Putting aside this difficulty, it is only by the careful consideration of such points as I have indicated that one is able to form a reasonably accurate estimate of what, barring accidents, is the individual's chance of surviving to the natural term of human life. If, however, he is found not to be really healthy, but to present signs of incipient or old-standing disease in any of the important organs the prognosis must be arrived at on the same considerations as in a case of chronic disease About this I shall have something to say immediately

PROGNOSIS IN ACUTE DISEASE

Prognosis in acute self-limited disease—not of a necessarily fatal sort—resolves itself into the question, Can the patient be kept alive until the malady has run its course? In arriving at a judgment upon this question the patient's age is, again, of first importance, for in acute disease, of which pneumonia may be taken as a typical example, age has more to do with the chance of recovery than anything else To quote Sir Andrew Clark once more, "No healthy person below the age of 40 ought ever to die of acute disease," and although, like most medical aphorisms, this has to be taken with a grain of salt, it does embody the fundamental truth that youth is the patient's chief ally. In this connexion I once investigated the mortality of pneumonia at the London Hospital over a period of ten years, the statistics covering some hundreds of cases, and found that the death-rate increased by about 10 per cent for every decade of advance in age of the patient Compared with age no other factor in the case seemed much to affect the outlook. One must take into account, of course, the patient's physiological age as well as his age by the calendar, and it is assumed that up to the time of the illness he has been in good health Acute disease supervening upon some chronic disorder is always more dangerous On the other hand, the patient's "physique" is no more a guide to his chances of overcoming an acute infection than it is to his prospects of longevity in health The condition of the chief organs is of the first significance, those which most demand attention being the heart, kidneys, and lungs, in that order of importance Much depends upon the heart, for, in acute disease, a patient "lives as long as his left ventricle" Unfortunately, we have no means of directly estimating the staying power of the heart, some such means is a great desideratum in all prognosis Some clinical indications are of help, however Thus a steadily increasing rate of the pulse with a tendency for it to become irregular when the patient turns over in bed is a disquieting sign, and so is the disappearance of the first sound at the apex A wide departure from the normal pulse-respiration ratio in either direction should always cause anxiety. A low blood pressure is unfavourable, and in such a disease as pneumonia there is no better guide to prognosis than the relation between the systolic pressure and the pulse rate So long as the pressure (in millimetres) is higher than the pulse-rate per minute, things are going well, if the ratio is reversed then the outlook is bad Such a sign of general circulatory failure as coldness of the extremities is always a very grave portent

Some general indications may also aid one Thus a moist skin and a moist tongue are of better omen than dryness of these organs, and constipation is better than diarrhœa Ability to take food is always favourable, and the physicians of former days attached great importance to it Heberden considered loss of appetite "the despair of Nature, yielding up her power to the force of the disease," On the other hand, the temperature is of much less prognostic value than a patient's friends usually suppose, and all that one can say of it is that the gravity of a high temperature is least in a child and greatest in old age The degree to which a patient is maintaining or losing strength may be judged to some extent from his position in bed A persistent dorsal decubitus, and, still more, a tendency to slip down in the bed, are bad signs, whilst an ability to lie on the side is favourable The grip of the hand is a useful gauge of strength, and so is the timbre of the voice I was once told by a clergyman of large experience in visiting the sick that he could tell at once by the degree of resonance in a patient's voice whether he was better or worse. A consideration of all these factors taken in conjunction with what is known as to the statistical rate of recovery in the particular disease will usually enable one to form a fairly trustworthy estimate of the patient's chances[1] What is most likely to falsify one's hopes is the supervention of sudden heart failure, but this is unforeseeable

PROGNOSIS IN CHRONIC DISEASE

In forming a prognosis in chronic cases the first consideration is whether the malady is of its very nature a mortal one or whether it is susceptible of cure, or at least of arrest In cases of the former category, of which lymphadenoma may be taken as an example, the average duration of the disease as shown by statistics will enable one to form at least a rough estimate of the period to which the patient's life is likely to be prolonged, but his general condition must also be taken into consideration In wasting disorders, for instance, a well-nourished patient is likely to last longer than one who is already emaciated Much, also, will depend upon the patient's "resistance" and upon the degree of "virulence" of the disease in his particular case, and these important factors can often only be appreciated by watching the progress of events for a period

In chronic diseases which are capable of arrest, or even cure, such as pulmonary tuberculosis and diabetes, the resistance of the patient and the type of the disease play such a preponderating part that it is never wise to make a forecast until the patient has been under observation for some time, and it is in such cases that hasty prognosis is most to be deprecated Apart from this the same general considerations must guide one, as in cases of chronic incurable disease, whilst much importance must also be attached to the presence or absence of "complications" In no class of case, also, have the patient's habits and surroundings a greater influence on the march of events

CAUSES OF ERROR

We may now consider briefly the chief causes of error in prognosis Easily first amongst these is wrong *diagnosis* I remember a good many years ago seeing in consultation a lady who had been suffering for some months from symptoms of dyspepsia and had lately taken to vomiting all food On examination of the abdomen I felt a large, hard and irregular lump in the epigastrium I concluded that the patient was suffering from cancer of the stomach, and told her husband that she could not recover A few days later, however, an enema removed a big scybalous mass from the bowel, the tumour disappeared, and with it all the patient's symptoms! My prognosis here was wrong because my diagnosis was wrong, and so it must ever be, for accurate prognosis depends first and foremost upon exact diagnosis, and it will be found, I think, that much uncertainty as to prognosis in practice is really due to the fact that the doctor is not quite sure what he is dealing with

Another source of error is the attaching of too much importance to physical signs and too little to the patient's general condition This usually leads one to make too gloomy a forecast In the same way what has been called the "post-mortem type of mind" in a doctor tends to make him take too serious a view of disease He has a very clear vision of the structural changes in the patient's organs, but is apt to forget how long a hopelessly damaged machine is able to go on running

A common mistake, which can hardly be avoided altogether, is failure to allow for possible complications—for the supervention of embolism or pulmonary œdema or a sudden hæmorrhage, and so forth Such events are so unpredictable that it is always justifiable—and wise—to hedge by saying "the outlook is good—*provided no complication arises*" Our inability to estimate the reserve power of the heart which has been already deplored, is another and fertile source of falsification of the best-laid prognoses In the present state of our knowledge this source of error is, apparently, unavoidable

Lastly, it must be frankly recognised that a wrong prognosis is often the result of a failure or refusal to face the facts Some doctors, out of kindness of heart or from a fatuous sort of optimism or inability to admit that they are beaten, keep on promising recovery when a cooler judgment would recognise that the game was up This is an error, albeit an excusable one, for it is only by an entirely judicial weighing of the evidence, without bias one way or the other, that accuracy in prognosis is to be reached It is bad to "give up" a patient too soon, but, from the point of view of prognosis, it is almost as bad to place too much faith in the popular adage, "While there is life there is hope"

Apropos of this aspect of our subject, it might be supposed that a doctor's own temperament would influence his prognosis, that the optimist would tend to take a hopeful view, and the pessimist a gloomy one I doubt, however, whether this is so At any rate, so far as I have been able to observe, a man may be a pessimist in his general outlook on life and yet be as hopeful in his attitude to disease as anyone else Young men, indeed, who ought to be optimists, are generally more gloomy prognosticians than the old, for, like the post mortem-minded doctors spoken of above, they have not learnt by experience how well a patient can get on even although his organs are seriously impaired I have an impression, too, that women tend to be less inclined to the rosy view than men—but this may be the result of natural timidity or over-conscientiousness Anyhow, one should always try (in the words of *Punch*) to be neither a "pooh-pooher" nor a "wind-upper"

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[1] It need hardly be said that a knowledge of the statistical rate of recovery is of only limited value in *individual* prognosis If, for example, a patient is told that the mortality rate of his disease is 30 per cent he naturally wants to know whether *he* is likely to be one of the unfortunate 30 It does, however give a rough indication of the odds against which he has to fight

What the Patient Should be Told

Having formed a prognosis the question arises, Should one communicate it to the patient, or, in other words, "Should the doctor tell?" Now the first thing to be remarked on this question is that a patient is often curiously incurious as to the outcome of his disease—he is much more likely to be interested in its cause or its treatment Whether this may be for the reason that he is afraid to ask I do not know, but the fact remains, and it is more likely to be the relatives who will inquire as to his chances One must be on the watch, however, as Dr H W Gardner has said, against unconscious telling "Beware," as he puts it, "the unguarded word, the unguarded hesitation, or even the unconscious sigh," any of which may "give the show away" As to conscious and deliberate telling, it need hardly be said that if the prognosis is favourable the question does not arise, for nothing but good can then come from declaring one's opinion, although it is always prudent, as I have pointed out before, to qualify it by the rider "provided there are no complications," and to remember the wise saying that in matters of prognosis a doctor should never say "always" or "never" An unfavourable verdict, however, is a totally different matter, and opinions differ as to what course one should take about it Dr Samuel Johnson had no doubt on the point "I deny," he said, in his downright way, "the lawfulness of telling a lie to a sick man for fear of alarming him You have no business with consequences you are to tell the truth Besides, you are not sure what effect your telling him that he is in danger may have It may bring his distemper to a crisis, and that may cure him" With all respect to the great moralist, however, the matter is not quite so simple as that The doctor *has* a responsibility for the consequences of what he says to a patient, and so far from a gloomy prognosis "bringing his distemper to a crisis," it is much more likely both to depress the patient's power of opposing the disease, and so, perhaps, turn the scale against him, and to discourage those in attendance with the knowledge that they are fighting a losing battle We must never forget that, as Coleridge said, "he is the best physician who is the best inspirer of hope", or that, in Biblical language, "We are saved through Hope" On the other hand, it may be desirable that the patient should know that he is in danger He might wish, for instance, to make a disposition of his worldly goods, to send for someone whom he loves, or even, in the old phrase, "to make his peace with God" In these circumstances the practice with most doctors, and it is probably on the whole the best, is to take some discreet relative into confidence and to leave it to him or her to tell the patient if it is thought wise

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It has become a commonplace of medical teaching that nephritis usually manifests itself in one of two forms (1) the type characterised by œdema, and (2) the type associated with high blood pressure and other cardiovascular phenomena, nitrogen retention in the blood, and uræmic symptoms These two clinical types are the néphrite hydropigène and the néphrite azotémique of French observers It is likewise a commonplace that, whereas pure examples of one or other of these types are frequently seen, it occasionally happens that one form may merge into the other, or that at least some degree of one type may become grafted upon a case exhibiting chiefly the other group of symptoms

The distinction between the two types of disorder can be set out as follows —

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overcoming an acute infection than it is to his prospects of longevity in health The condition of the chief organs is of the first significance, those which most demand attention being the heart, kidneys, and lungs, in that order of importance Much depends upon the heart, for, in acute disease, a patient "lives as long as his left ventricle" Unfortunately, we have no means of directly estimating the staying power of the heart; some such means is a great desideratum in all prognosis Some clinical indications are of help, however. Thus a steadily increasing rate of the pulse with a tendency for it to become irregular when the patient turns over in bed is a disquieting sign, and so is the disappearance of the first sound at the apex. A wide departure from the normal pulse-respiration ratio in either direction should always cause anxiety. A low blood pressure is unfavourable, and in such a disease as pneumonia there is no better guide to prognosis than the relation between the systolic pressure and the pulse rate So long as the pressure (in millimetres) is higher than the pulse-rate per minute, things are going well; if the ratio is reversed then the outlook is bad Such a sign of general circulatory failure as coldness of the extremities is always a very grave portent

Some general indications may also aid one Thus a moist skin and a moist tongue are of better omen than dryness of these organs, and constipation is better than diarrhœa Ability to take food is always favourable, and the physicians of former days attached great importance to it Heberden considered loss of appetite "the despair of Nature, yielding up her power to the force of the disease," On the other hand, the temperature is of much less prognostic value than a patient's friends usually suppose, and all that one can say of it is that the gravity of a high temperature is least in a child and greatest in old age The degree to which a patient is maintaining or losing strength may be judged to some extent from his position in bed A persistent dorsal decubitus, and, still more, a tendency to slip down in the bed, are bad signs, whilst an ability to lie on the side is favourable The grip of the hand is a useful gauge of strength, and so is the timbre of the voice I was once told by a clergyman of large experience in visiting the sick that he could tell at once by the degree of resonance in a patient's voice whether he was better or worse. A consideration of all these factors taken in conjunction with what is known as to the statistical rate of recovery in the particular disease will usually enable one to form a fairly trustworthy estimate of the patient's chances[1] What is most likely to falsify one's hopes is the supervention of sudden heart failure, but this is unforeseeable

PROGNOSIS IN CHRONIC DISEASE

In forming a prognosis in chronic cases the first consideration is whether the malady is of its very nature a mortal one or whether it is susceptible of cure, or at least of arrest In cases of the former category, of which lymphadenoma may be taken as an example, the average duration of the disease as shown by statistics will enable one to form at least a rough estimate of the period to which the patient's life is likely to be prolonged, but his general condition must also be taken into consideration In wasting disorders, for instance, a well-nourished patient is likely to last longer than one who is already emaciated Much, also, will depend upon the patient's "resistance" and upon the degree of "virulence" of the disease in his particular case, and these important factors can often only be appreciated by watching the progress of events for a period

In chronic diseases which are capable of arrest, or even cure, such as pulmonary tuberculosis and diabetes, the resistance of the patient and the type of the disease play such a preponderating part that it is never wise to make a forecast until the patient has been under observation for some time, and it is in such cases that hasty prognosis is most to be deprecated Apart from this the same general considerations must guide one, as in cases of chronic incurable disease, whilst much importance must also be attached to the presence or absence of "complications" In no class of case, also, have the patient's habits and surroundings a greater influence on the march of events

CAUSES OF ERROR.

We may now consider briefly the chief causes of error in prognosis Easily first amongst these is wrong *diagnosis*. I remember a good many years ago seeing in consultation a lady who had been suffering for some months from symptoms of dyspepsia and had lately taken to vomiting all food On examination of the abdomen I felt a large, hard and irregular lump in the epigastrium I concluded that the patient was suffering from cancer of the stomach, and told her husband that she could not recover A few days later, however, an enema removed a big scybalous mass from the bowel, the tumour disappeared, and with it all the patient's symptoms! My prognosis here was wrong because my diagnosis was wrong, and so it must ever be, for accurate prognosis depends first and foremost upon exact diagnosis, and it will be found, I think, that much uncertainty as to prognosis in practice is really due to the fact that the doctor is not quite sure what he is dealing with

Another source of error is the attaching of too much importance to physical signs and too little to the patient's general condition This usually leads one to make too gloomy a forecast In the same way what has been called the "*post-mortem* type of mind" in a doctor tends to make him take too serious a view of disease He has a very clear vision of the structural changes in the patient's organs, but is apt to forget how long a hopelessly damaged machine is able to go on running

A common mistake, which can hardly be avoided altogether, is failure to allow for possible complications—for the supervention of embolism or pulmonary œdema or a sudden hæmorrhage, and so forth Such events are so unpredictable that it is always justifiable—and wise—to hedge by saying "the outlook is good—*provided no complication arises*" Our inability to estimate the reserve power of the heart which has been already deplored, is another and fertile source of falsification of the best-laid prognoses In the present state of our knowledge this source of error is, apparently, unavoidable

Lastly, it must be frankly recognised that a wrong prognosis is often the result of a failure or refusal to face the facts Some doctors, out of kindness of heart or from a fatuous sort of optimism or inability to admit that they are beaten, keep on promising recovery when a cooler judgment would recognise that the game was up This is an error, albeit an excusable one, for it is only by an entirely judicial weighing of the evidence, without bias one way or the other, that accuracy in prognosis is to be reached It is bad to "give up" a patient too soon, but, from the point of view of prognosis, it is almost as bad to place too much faith in the popular adage, "While there is life there is hope"

Apropos of this aspect of our subject, it might be supposed that a doctor's own temperament would influence his prognosis, that the optimist would tend to take a hopeful view, and the pessimist a gloomy one I doubt, however, whether this is so At any rate, so far as I have been able to observe, a man may be a pessimist in his general outlook on life and yet be as hopeful in his attitude to disease as anyone else Young men, indeed, who ought to be optimists, are generally more gloomy prognosticians than the old, for, like the post mortem-minded doctors spoken of above, they have not learnt by experience how well a patient can get on even although his organs are seriously impaired. I have an impression, too, that women tend to be less inclined to the rosy view than men—but this may be the result of natural timidity or over-conscientiousness Anyhow, one should always try (in the words of *Punch*) to be neither a " pooh-poober " nor a " wind-upper "

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Whilst many of the clinical features of these two syndromes have been recognised since the days of Bright, the interrelation of the two has been the subject of such confusion, and the relation of each to the macroscopic appearances of the kidneys seen at autopsy has often been so contradictory that nephritis has remained a subject of the utmost complexity to all students of medicine, whether qualified or unqualified

If the clinical and laboratory features of the dropsical type of renal disorder are examined, it is apparent that the evidences of defective kidney function are not considerable There is albuminuria, often of massive proportions, which seems inexplicable on any ground save that of damage to the kidneys, there is marked œdema, but this is a symptom which cannot readily be produced experimentally by any action on the kidneys; and beyond these symptoms we have a series of findings almost entirely negative, which points to the renal function being generally efficient rather than deranged.

The Conception of Nephrosis

In recent years the term nephrosis has occurred with increasing frequency in medical literature It appears to have been originally suggested by F Muller[1] to emphasise those types of renal disease in which purely degenerative rather than "inflammatory" lesions are conspicuous, the term nephritis being reserved for the latter. German writers have gradually accepted this conception as one of primary pathological importance, and the work of Volhard and Fahr[2] and of Munk[3] has done much to establish the term and harmonise it with certain clinical findings

It may be apposite at this point to recall the large number of examples of supposed renal disorders in which actual inflammatory reaction of the kidney tissue cannot be proved; many of the "renal" complications of pregnancy, the majority of cases of "hydropiginous" or "dropsical" nephritis in children, and probably most of these cases of "nephritis" seen during the late war fall into this group, the microscopic appearances in the kidneys being almost purely degenerative According to the conception of Munk,[4] all renal disease with œdema apart from heart failure should be classed as nephrosis, whilst cases with hæmaturia, uræmia, and cardiovascular complications constitute true nephritis When a water-logged patient gets an attack of hæmaturia, and the blood pressure rises and nitrogen retention appears, it is nephritis complicating nephrosis, when, on the other hand, a patient after a febrile hæmaturia with transient hyperpiesia passes into a condition of anasarca, that is nephrosis supervening upon nephritis It must be noted that in contrast to these views many British pathologists hold that the ætiology of all kidney disease is toxic, degeneration being always the first effect and reaction a later but not inevitable consequence, and that degeneration is itself an inflammatory phenomenon, whether followed by reaction or not

The Blood-lipoids in Renal Disorders

In 1911 Chauffard, Laroche[5] and Grigaut[6] observed that in nephritic œdema there was frequently excess of cholesterol in the blood, whereas in cardiac œdema the cholesterol was never increased This was confirmed in the following year by Widal, Weill and Laudat,[7] who made a careful study of the total lipoids, and found that in cases of renal disease massive albuminuria was essentially the symptom correlated with hypercholesterolæmia They noted that in these cases there was no nitrogen retention, a normal urea excretion, and no cardiovascular change, but do not appear to have laid much stress on their discovery, as they draw the conclusion that lipæmia and hypercholesterolæmia do not form so special a syndrome as chloride or nitrogen retention does In 1902 Kaiserling and Orgler[8] had shown that in certain rare specimens of kidneys seen at autopsy doubly refractive lipoids were the cause of the peculiar greasy deposits which had led to such organs being termed myelin kidneys Adami and Aschoff[9] shortly afterwards proved that such lipoids were chiefly in the nature of cholesterol esters, and Munk[10] fully recognised this type of lipoid degeneration Three examples of such kidneys have been described by McNee,[11] who in 1922 summarised the existing knowledge of the subject Further reference was made by Stewart,[12] and Parkes Weber[13] demonstrated a similar specimen at the Royal Society of Medicine in 1924 But in none of these cases was the connexion between these pathological specimens and a precedent hypercholesterolæmia referred to, save in the last, where Parkes Weber remarks "one should remember the frequency of hypercholesterolæmia in uræmic and chronic nephritic cases," showing that even at that date the connexion was imperfectly realised, the true fact being that hypercholesterolæmia is found essentially in hydropiginous and non-uræmic conditions This is brought out in the careful observations of Dyke,[14] who in 1924 published an account of six cases of dropsical renal disease in which lipoid degeneration was present in the renal tubules at autopsy. In three of these cases there were no cardiovascular changes and no nitrogen retention in the blood, and the microscopical examination of the kidneys showed considerable tubal damage with only slight changes in the glomerular and interstitial tissues In the other three cases there were, in addition to the initial œdema, hæmaturia, increased blood pressure, and uræmia at the termination, and the autopsy revealed again lipoid degeneration of the tubules but also extreme changes in the glomerular and interstitial tissues Dyke expresses the logical conclusion that the œdema in all these cases was connected with the tubal degeneration, and that the cardiovascular and uræmic manifestations were aroused by inflammatory reaction in the glomeruli, he also emphasises the view that the myelin kidney is only the extreme development of the lipoid degeneration invariably seen in the tubal tissue in cases of hydropiginous renal disease

From the conception of "nephrosis," a purely degenerative renal lesion, by Muller in 1905, the recognition of doubly refractive lipoids in the myelin kidney by Kaiserling and Orgler in 1902, and the discovery of hypercholesterolæmia in renal œdema with albuminuria by Chauffard and Widal in 1911, have arisen the modern views concerning the condition now commonly described as lipoid nephrosis These found their full expression in the work of Epstein, who in a series of papers[15] [19] published between 1912 and 1920 focussed the attention of the English-speaking world upon cases of nephritis exhibiting an enormous daily loss of albumin in the urine, a reversal of the usual albumin-globulin ratio in the plasma, with reduction of the total plasma proteins, excess of blood-cholesterol, normal blood-urea and non-protein nitrogen, and no cardiovascular changes Epstein emphasised the occurrence of apparently primary cases of this disease in young subjects, with no previous renal history, and mentions its chronic though apparently benign course, and the great benefit often observed by giving a diet rich in proteins, low in carbohydrates, and with no fat

During the same period Munk[4] had, in Germany, gradually evolved a similar conception. He describes lipoid nephrosis as an insidious disease appearing in young persons, with œdema, intense albuminuria but no hæmaturia, oliguria, normal nitrogen excretion, normal blood pressure, excess of cholesterol in the blood, and doubly refractive lipoids in the urine The course is very chronic, and on the whole benign The only difference between the description given by Epstein and that of Munk would appear to be that the former lays emphasis on the alteration in the proportions of albumin and globulin in the plasma, whilst the latter stresses the occurrence of doubly refractive lipoids in the urine

Observations on the cholesterol content of the blood in renal disease are not yet very numerous, but such as are accessible in the literature all seem to support the original observations of Chauffard and of Widal Thus, Stepp,[20] Strauss,[21] Daniels [22] Schwarz and Kohn,[23] Hiller,[24] Elwyn,[25] Kollert,[26] and Murphy and Warfield,[27] have all published confirmatory observations, whilst the negative findings of Bloor[28] are an additional confirmation in that they were made entirely upon cases without œdema It is significant to note that observations on cases of renal œdema without hypercholesterolæmia are conspicuously absent, and it seems reasonable to doubt whether such a condition can occur unless the œdema is merely due to cardiac failure following high blood pressure

Our own observations on this point agree with those referred to above, typical examples are set out in Table I

TABLE I —*Cholesterol Content of Blood expressed in Milligrammes per 100 Cubic Centimetres*

Nature of case	Cholesterol.	Nature of case	Cholesterol
Uræmia	142	Renal œdema	517
	112		444
Chronic nephritis, nitrogen retention	130		240
	140		227
	117		290

For comparison with Table I we quote from our observations on certain other cases (Table II)

TABLE II —*Cholesterol Content of Blood expressed in Milligrammes per 100 Cubic Centimetres*

Nature of case	Cholesterol.	Nature of case	Cholesterol
Pernicious anæmia	97	Obstructive jaundice	340
Diabetic coma	210		333
Cirrhosis of liver, no jaundice	131		308
Syphilitic cirrhosis, no jaundice	105		250
Addison's disease	78		305
Diabetes	127		359

Pure Lipoid Nephrosis

The summarised account of the clinical and laboratory features of lipoid nephrosis which we have given above applies to what is sometimes called its pure or primary form. How often this occurs is still a matter of considerable doubt, but cases in children and young adults are certainly not infrequent To fall into this category a case must have no history of scarlatina or other probable cause of renal inflammation, there must be albuminuria without hæmaturia from the outset, and œdema without cardiovascular change or uræmic manifestations at any time

The following case, recently observed, may be placed in this class .—

CASE 1 —W A, male, aged 22 Had suffered from measles, chicken-pox, and whooping-cough, without complications, during childhood. In 1923 had a slight attack of pleurisy In 1925 had pyodermia. In August, 1926, during a holiday, he observed that his abdomen and legs were swollen A few weeks later the face also swelled He had transitory epigastric pain and diarrhœa. Nothing abnormal was observed as to his urine Seen at the end of October, 1926, the face looked puffy The legs and lumbar region were somewhat œdematous There were ascites and evidence of bilateral hydrothorax Blood pressure 140/90, heart normal After two days in bed the blood pressure was found to be 110/70 Optic fundi normal Urine, S G 1020, eight parts of albumin per 1000, a few hyaline and granular casts No blood

Blood analysis (milligrammes per 100 cubic centimetres). urea, 30, non-protein N, 29, uric acid, 3 6, chlorides, 479; cholesterol, 209 Wassermann reaction was negative

Admitted to Middlesex Hospital under the care of Dr C E Lakin, he was put on a diet of abundant protein and no fat. The urine was found to vary between ½ and ¾ litre per diem, the albumin loss amounting to 10 g or more daily. Repeated examinations of the blood confirmed the normal nitrogen figures The cholesterol at different examinations was found to amount to 209, 256, 266, 294 mg per 100 c cm. A chloroform extract of the urine gave a faint positive reaction for cholesterol The sedimentation time of the red corpuscles was considerably diminished The basal metabolic rate was 19 per cent below normal The urea in the urine was between 2 and 3 per cent, and after the administration of 15 g of urea rose to just above 3, showing full normal concentrating power. During the first four weeks of treatment the œdema of the legs, face, and lumbar region disappeared, there was still slight ascites The daily albumin loss remained high Patient felt well. Observation continues

This case exhibits the features of pure lipoid nephrosis—namely, absence of history, oliguria profuse albuminuria, œdema, normal cardiovascular system, no nitrogen retention, hypercholesterolæmia normal concentrating power of the kidney, low basal metabolic rate diminished sedimentation time of the blood The only doubt as to the absence of other factors lies in the fact that on two occasions traces of blood were present in the urine

In addition to those of Epstein and Munk, the cases quoted by Schwarz and Kohn, Dyke, and Murphy and Warfield appear usually to have been examples of pure lipoid nephrosis The paper of Murphy and Warfield is particularly interesting in that it describes the post-mortem findings in one of these "pure" cases, the changes in the kidneys were found to be almost entirely in the epithelium of the tubules

Complicated or Secondary Lipoid Nephrosis

But there is no doubt that lipoid nephrosis is often seen in cases where there has been an initial inflammatory disease of the kidney, usually of the glomerular type And again it seems certain that many cases which are apparently a primary degeneration with characteristic albuminuria and œdema later become complicated by glomerular inflammation

The following may be given as a case falling into this class —

CASE 2 —B M, female, aged 20 Measles at age of 2 years, "nephritis" at 6, recurring at 15 She was then admitted to hospital three times, details are unknown In October, 1925, she was admitted to Middlesex Hospital under the care of Dr R A Young She had been well in the preceding March, but then began to swell in the face, abdomen, and legs Vomiting set in and had continued intermittently

On admission she had œdema, ascites, oliguria, and 20 parts of albumin per 1000 in the urine The systolic blood pressure was 140 mm, but the heart was not enlarged perceptibly Treated with a generous diet and urea administration, the œdema subsided rapidly and considerably, but on discharge she was still passing considerable amounts of albumin and the systolic blood pressure remained at 140 The urine never contained more than 1 5 per cent of urea, even after urea administration. The Wassermann reaction was negative.

Examined 13 months later, patient was at work and feeling well save for occasional headaches There was some œdema of the ankles, and she said that œdema had fluctuated considerably from month to month. Systolic blood pressure 140 mm. Considerable albuminuria

The following are the results of blood analysis at various dates —

	On admission.	Six weeks later	Eleven weeks later
Urea	32	94	58
Non-protein N	32	63	51
Chlorides	541	556	—
Cholesterol	517	240	375

The nitrogen retention and raised blood pressure in this case point to glomerular and interstitial changes of serious degree, and make the prognosis correspondingly bad The probable uræmic termination of complicated cases of this type may be illustrated as follows —

CASE 3 —E H, male, aged 16 Admitted to Middlesex Hospital May, 1923 There was no previous history save whooping-cough in infancy On admission there was œdema of legs, face, and abdomen. Massive albuminuria, hæmaturia, normal cardiovascular system Patient vomited on several occasions, but after a few weeks felt well The œdema did not subside or respond to Epstein's diet During the following months the œdema fluctuated, albumin passed amounted to from 8 to 20 parts per 1000 Headaches occurred, there was a steady increase in blood pressure, and nitrogen retention in the blood became evident At the beginning of September, after a single convulsion, the patient became suddenly comatose and failed to recover consciousness, in spite of hot-air baths, venesection, and lumbar puncture He died in 36 hours

	May	June	July	August	Sept	P M *
Systolic b p	125	148	144	160–176	200	—
Blood-urea	28	55	55	—	—	54
Non protein N	27	49	45	—	—	73

* Post mortem

The total albumin lost per diem appeared to bear some relation to the patient's general condition, being markedly increased during the final week

Elwyn, whose recent paper is an important one, admits the occurrence of pure lipoid nephrosis, but appears to stress the frequency with which the disease is really secondary to an inflammation affecting the glomerular epithelium, and it is noteworthy that in the cases of Dyke there were always histological changes in the glomeruli, although these were far more conspicuous in those examples which had later developed high blood pressure and uræmia. It is certainly difficult to explain albuminuria of the massive type seen in these cases on any hypothesis save that of increased permeability of the glomerular epithelium, but it should be added that such increased permeability does not necessarily imply an inflammatory lesion The occurrence of lipoid nephrosis secondary to an initial nephritis is, however, not questioned It may here be recalled that in the early observations of Widal, Weill and Laudat several of the cases exhibiting œdema and hypercholesterolæmia were examples of tuberculous disease of the kidney

Treatment of Lipoid Nephrosis

Much of the interest aroused by the original publications of Epstein was due to the line of treatment of cases of chronic renal œdema there suggested References in English literature by Galloway,[29] and by MacLean and de Wesselow,[30] dealt almost exclusively with this side of his work, the possibility of dietetic replacement of albumin lost in the urine being the factor which aroused attention rather than the correlation of the cholesterol excess, this latter factor being apparently little considered Epstein's diet consists essentially in the replacement of carbohydrate as far as possible by protein and an entire elimination of fats

In common with many other observers, we have seen occasional brilliant effects from this treatment, but it is generally agreed to-day that there is no uniformity in results, which are often disappointing, the first case we have quoted in detail showed great benefit, the second also exhibited great temporary relief in the degree of œdema, the third failed entirely to respond In the last case this was probably due to the progress of glomerular change and nitrogen retention, but it must in general be admitted to day that Epstein's diet is uncertain in its effects, although it has shown the frequent advantage of a generous diet in cases without signs of nitrogen retention

A further interesting form of therapy in cases of lipoid nephrosis is the administration of thyroid extract. Eppinger[31] has shown that a lowered basal metabolism is frequent in this disorder, and considerable benefit is sometimes observed as the result of giving thyroid extract The high doses tolerated by most patients is indirect evidence in favour of such treatment

The administration of urea by mouth appears to be rational if *blood analysis at repeated* intervals shows that there is no nitrogen retention.

Some Unsolved Problems

In the space of the present paper it is impossible to deal adequately with the many important problems that arise from consideration of the phenomena of lipoid nephrosis

The mechanism of the œdema is, perhaps, the chief of these Abandoning the classical theory of salt retention, Epstein has endeavoured to explain this on the basis that the profuse albuminuria causes such loss of plasma albumin that water is drawn from the blood stream to the tissues by the force of osmosis. Elwyn has more recently put forward the view that the body endeavours to check the albumin-loss in the urine by diminishing the urinary flow, and that the consequent tendency to an increased blood volume is then corrected by the passage of water into the tissues; this ingenious hypothesis seems to lack experimental support

The second outstanding problem is the significance of the hypercholesterolæmia Does it appear from the outset, or is it only apparent after albuminuria and œdema have been prominent for some time? Of its intensity there seems to be no question, indeed our personal observations and those of many others who have inquired into the subject seem to point to the cholesterol excess in lipoid nephrosis being greater than in any other common disease save possibly obstructive jaundice In a few cases of transient œdema of renal origin in gravid women we have found a blood cholesterol within the high limits usually observed in pregnancy, but we have not been able to trace record of any cases of chronic œdema in renal disease, apart from cardiac failure, in which a normal or low blood-cholesterol has been found after repeated examination

The prognosis in these cases is a further obscure point A certain number appear to make a rapid and complete recovery, but the vast majority become chronic, although the œdema appears to wax and wane considerably Their very chronicity is the chief reason why complete records are relatively scarce, the general hospitals are unable to house them indefinitely, and they pass out of observation A considerable number become complicated by nephritis and die in the typical manner of renal failure, in uræmic coma But many others appear to terminate with a low-grade peritonitis which certain German authorities believe to be pneumococcal

Lastly, a word must be said concerning the macroscopic appearance of the kidneys in these cases Is it not time that the story of the large white man with the large white kidneys were abandoned? There is no uniformity in the naked-eye appearance of the kidneys seen in autopsies on patients dying with lipoid nephrosis, but it seems certain that kidneys which are large and white are somewhat unusual The matter is, perhaps, unimportant, but we mention it because it has for years distracted attention from the findings of the laboratory and the microscope, which are probably of much greater import to the clinician

We wish to express our thanks to Dr Young and Dr Lakin for permission to publish certain observations on cases under their care Expenses incurred in this inquiry were partially defrayed by a Government grant made on the recommendation of the Royal Society This paper forms part of a report to the Medical Research Council

Summary

1 Apart from albuminuria, it is difficult to demonstrate any clinical evidence of renal disorder in the dropsical type of "nephritis"

2 On account of the paucity of clinical and microscopical evidence of inflammation in many of these cases they are frequently spoken of as examples of "nephrosis" rather than "nephritis"

3 Hypercholesterolæmia has been shown to be a conspicuous feature of these cases, in sharp contrast to those with uræmia and cardiovascular changes, where the cholesterol content of the blood is usually normal

4 The "myelin kidney" is probably the extreme development of the common anatomical change in this condition, which in milder cases exhibits itself merely as lipoid degeneration of the renal tubules

5 Examples are given of the cholesterol content of blood from these and other diseases

6 Cases are detailed (*a*) in which there was apparently pure lipoid nephrosis, and (*b*) in which this condition was complicated by nephritis, nitrogen etention, and uræmia

7 The most promising treatment at present is by the "Epstein" diet and thyroid administration

8 The mechanism of the œdema and the significance of the hypercholesterolæmia in these cases cannot at present be explained

9 These cases are almost invariably chronic, death is usually due either to a low-grade peritonitis or to uræmia as a complication.

10 The "large white kidney" is not a common finding at autopsy.

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SERUM PROPHYLAXIS IN MEASLES

AN EVALUATION OF THE RESULTING IMMUNITY

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THE writer has recently attempted the control of an epidemic of measles on rubber estates in the Federated Malay States by inoculation of the children *en masse* with serum from convalescent cases A description of the method employed and a critical survey of the immediate results will, in due course, be communicated to the medical press But some months after a number of plantation outbreaks had thus been brought to a close morbilli reappeared on three of the seven estates on which serum prophylaxis had been practised Comparatively little is yet known of the degree and duration of the passive immunity conferred by this mode of protection, and it is therefore proposed to record some observations on these points in the present paper.

Immediate Results of Serum Prophylaxis

The immediate results achieved with 395 children are summarised below Groups numbering 93, 132. 50 and 120 children were given 2, 2 5, 3, and 3 5 c cm of serum respectively During the seven weeks following inoculation the incidence in these groups was 15 per cent, 4 5 per cent, 14 per cent and 1 per cent Cases continued among adults and uninoculated children after the last cases in the inoculated groups on all the estates, so that opportunity for infection was not lacking. Yet there were not more than 28 cases among the 395 children, and only six of these developed the rash after an interval of ten days had elapsed from the date of inoculation. The average incubation period may be taken as ten days, and the rash of measles usually appears on about the fourteenth day after infection, but when serum is given, many instances have been recorded in which the incubation period has been considerably lengthened If this factor be ignored, 22 of the failures probably received serum on or after the fifth day of incubation and when serum was given in doses varying from 2 to 3 5 c cm before exposure or during the first four days of incubation the failures were only 1 6 per cent.

Duration of Passive Immunity

A period of from one to three months has been cited by various investigators as the duration of the transient immunity which follows the inoculation of convalescent serum McNeal (1922) has reported an infection two months after protection, and v. Toobay (1921) three cases between the seventy-second and seventy-fifth day Duration will necessarily depend on antibody content and dosage of the serum, but the following instances which have occurred in the writer's series indicate that immunity may continue for considerably longer periods —

1 During the first week of November, 1925, 93 children belonging to estate No 1 were inoculated with 2 c cm of plasma from convalescent cases Fourteen of these developed measles, the last case occurring on Nov 19th, though cases continued among the adult coolies until Nov 27th In a small control group of ten uninoculated children on this estate eight became infected. Thus 79 inoculated and two uninoculated children escaped On March 31st, 1926, two new coolies from India arrived on the estate They had been quarantined for cholera at the F M S Quarantine Station before admission to the country, but it is the practice of the estate medical officer to isolate all new coolies on the estate for an additional six days when there is a history of recent contact with cholera cases These men were not therefore allowed in the coolie lines until April 6th They then mixed freely with the estate coolies and children and on the afternoon of April 8th both were admitted to hospital with typical measles eruptions In both instances the disease ran a mild course. All the estate children were examined for measles daily until April 23rd, but no fresh cases were reported, although the inoculations had been done some five months previously.

2 On Division A of estate No 3, 62 children were inoculated with 2 5 c cm. of serum on Nov 14th, 1925, 16 being kept as controls During the three weeks following there were five cases among the inoculated children and three in the control group The numbers of inoculated and control children who escaped were therefore 57 and 13 respectively On March 11th, 1926, measles reappeared among the adult coolies of the division, and up to April 20th this secondary outbreak involved 13 cases, including three (5 per cent) in the inoculated group and two (15 per cent.) among the controls The cases were all of a mild nature It thus appears that some residual protection was operative in a percentage of the children four and a half months after inoculation.

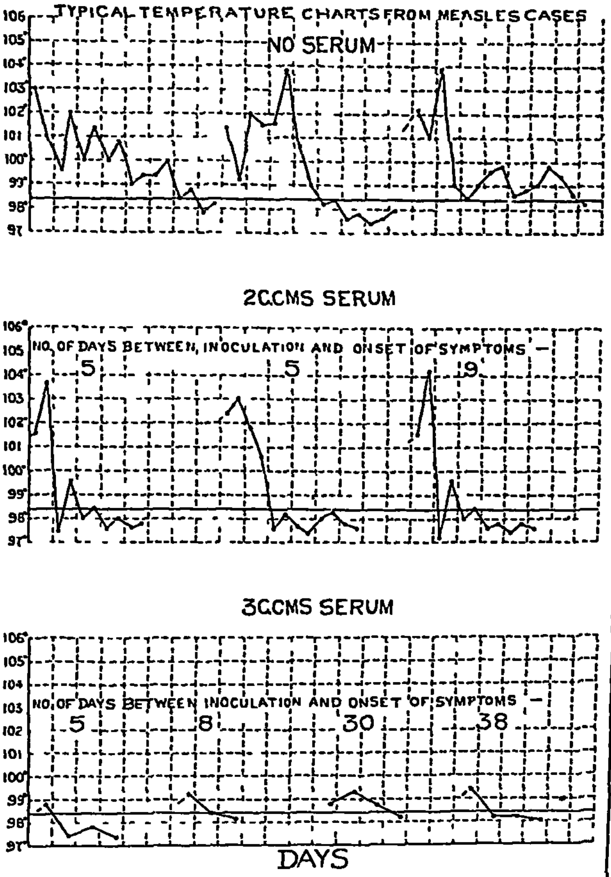
3 A secondary outbreak of measles also occurred on estate No 6, but in this instance the writer can only quote hearsay evidence, as he had, in the meantime, been transferred to Singapore. The inoculation of 75 out of 107 children on Dec 26th, 1925, with 3 5 c cm. of serum was followed by one further case in each group Cases in the following June numbered about 20, but only one or two of the inoculated children are said to have become infected

Attenuated Measles

The introduction of serum prophylaxis was followed by the observation of a striking modification in the course of the disease when such treatment was given in the later stages of incubation. Under these circumstances the malady is not aborted, but the incubation period may be increased, and the character of the disease is rendered so mild that complications and serious sequelæ are but rarely seen. Attenuation has also been noted in the few instances of the present series where serum, although given some time before infection, failed to protect, and the rash developed three weeks or more after inoculation

Of the 28 cases which developed measles within seven weeks of treatment, all but one of the children had very mild attacks The exception was a child aged 3 years, on whom the rash appeared seven days after the injection of 2 c cm of plasma Bronchopneumonia supervened, but the course was comparatively benign, and the little patient was discharged from hospital 14 days after admission A contributing cause of this complication was probably the migration of ascaris larvæ through the lungs On two control estates 13 children had serious complications, and six died among 69 cases

The cases of modified measles observed by the writer have been characterised by a comparative absence of catarrhal symptoms This probably greatly reduces the infectiousness of such cases The rash has been faint, with individual macules almost discrete, and the abbreviation in the course is well illustrated by the temperature charts reproduced on the accompanying figure Records are only available from the time of the onset of the rash, as the coolies ignore symptoms of invasion, and only report sick on the appearance of the eruption The upper part of the figure shows three charts typical of the febrile course in a large number of untreated children Beneath this are three charts from children who had been inoculated with 2 c cm of plasma, and developed the rash 5, 5 and 9 days afterwards The initial temperatures of these cases were as high as those of the controls, but defervescence was complete by the third day Four temperature charts are given on the bottom of the figure from children who received 3 c cm of serum and had symptoms of measles 5, 8, 30, and 38 days later The maximum temperature noted in this group was 99 9° F and by the second day all the cases had become normal



This attenuation of the disease following serum administration may be employed as a basis for estimating residual protection in cases which develop measles some months after inoculation Reference has already been made to the secondary outbreak which occurred on Division B of estate No 3, four and a half months after the majority of the children had been protected All the cases were very mild but the difference in the temperatures is seen below —

—	Case No	Age (in years)	Rash appeared on	Maximum temperature	
				First day	Second day
Inoculated children	1	2½	26/3/26	98 6° F	Normal
	2	9	1/4/26	98 6° F	"
	3	1	16/4/26	98 4° F	"
Controls	1	2	27/3/26	100° F	Normal
	2	1½	1/4/26	99 8° F	99·0° F

The initial temperature in the two controls was thus over a degree higher than in the three inoculated children and this fact, taken in conjunction with the higher incidence among the control cases, indicates that a degree of immunity was still operative

Commentary

In areas where measles appears from time to time in epidemic form, inoculation of the children with convalescent serum is a useful method for controlling the disease This is particularly the case when the population is grouped in small communities as on plantations or in villages With a dosage of 3 5 c cm of serum, a large percentage is protected, and, if measles supervene, the disease is attenuated even after an interval of four and a half months has elapsed.

But for endemic areas such as Europe and North America, this prophylactic measure cannot be considered suitable Immunity transmitted from mother to offspring disappears between the sixth and twelfth months of life, and some 80 per cent of the deaths from measles occur during the first four years. Protection which does not endure for about four years cannot, therefore, be of great value under urban conditions where opportunity for infection is almost continuous This period can only be covered by the conferring of an active immunity

The problem is immensely important in these days of falling birth-rates, for the annual death roll from measles approximates to 100,000 in European countries Bernard (1925) has observed that the mortality-rate is falling less rapidly than for scarlet fever and whooping-cough Little improvement can therefore be anticipated in this appalling loss of infant life until effective prophylaxis is actively employed A method which will protect during the first four years of life could save some 80,000 lives anually in Europe alone

Débré and Ravina (1923) have introduced an ingenious means of established active immunity They inject convalescent serum during the later stages of incubation thus causing attenuation of the disease The consequent comparative absence of coryza renders such cases much less dangerous to the child community, while the resulting immunity should endure throughout the danger period of early life But the coryza of the invasion period or the onset of the rash is only too frequently the first intimation of infection It is in a very small number of cases that the date of exposure is known, and injections can be given at the critical time

In the opinion of the writer a temporary solution of this problem in immunisation for endemic areas has been found by Nicolle and Conseil (1923) These workers suggested that active immunity could be best achieved by the use of convalescent serum followed 24 hours later by a small injection of blood from an acute measles case Experimental work should be directed to the determination of the optimum dosage of serum and virus, but when the day arrives that the measles virus can be cultured with certainty, the method will probably give place to a single inoculation of virus and artificially prepared immune serum

(References at foot of next page)

A CASE OF
OSTEOGENESIS IMPERFECTA

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(With Coloured Plate)

The purpose of this communication is, first, to record an interesting case, and, secondly, to urge the necessity of full chemical and pathological investigations into similar cases in view of the discovery that potent extracts of bovine parathyroids cause considerable excretion of calcium from the bones

Clinical History

T G S a youth aged 17 There was no history of fractures, blue sclerotics, deafness, nor a peculiar shape of the head in grandparents, parents, or brothers and sisters The patient is the ninth of 11 children Three of these died as babies either of pneumonia or in convulsions The mother had two miscarriages

He was a full-term baby and the labour was easy At birth he weighed 8 lb and was a " fine, healthy baby " with no deformity of any sort The blue sclerotics were noticed a few days after birth He was breast-fed until nine months and was then given Nestle's milk and barley water At 12 months he was given crusts, and subsequently a similar diet to the rest of the family He had his first tooth at 9 months, and began to talk at 18 months He did not crawl as a baby and has never walked The " opening in the head " closed between the third and fourth year He had measles and chicken-pox as a child, but otherwise, except for fractures and dislocations, he has been " very healthy " The second dentition began to appear at 10 years He attended an L C.C special school for cripples from the age of 10 to 17. He learned to read and write quite well He can stand only if he holds on to something, and even then he is very unsteady He slides about the house on his buttocks, and gets upstairs on his hands and knees

History of Special Condition

1 At birth there were no fractures and, as far as can be ascertained, the head was normal

2 At three weeks the right humerus was fractured while the mother was lifting him from his bath It was placed in splints and apparently united well in a few weeks

3 At 5 months he was admitted to the London Hospital under the care of Mr P Furnivall His brother had slipped while carrying him and had broken his left femur without actually dropping him The fracture united after treatment for three weeks in a gallows splint

4 Between 18 months and 2 years " the left leg was broken three times " These fractures were treated at home by the application of bandages

5 At 3 years he was again admitted to the London Hospital under the care of Mr P Furnivall, when the diagnosis " osteogenesis imperfecta " was made Apparently he had been sent to a home in the country where, according to the mother, " the nurses were very careless and broke three of his bones " He had subperiosteal fractures of the right femur, right humerus, and right ulna An interesting statement appears in the house surgeon's notes that " the head is hydrocephalic and the anterior fontanelle admits the little finger " The Wassermann reaction was negative " The bones united soundly " after immobilisation for six weeks

6 At 6 years he was admitted to the London Hospital under the care of Mr T H. Openshaw He then had a subperiosteal fracture of the right femur which united in two weeks

7 At 11 years he was admitted to the Mile End Hospital with a fracture of the right forearm

8 At 13 years he " put out the left shoulder " From his own description there is little doubt that this was a dislocation of the joint

9 He states that at 14 years some one fell over him in the dark and " put out both hips and the right collar bone." From his description it seems likely that he dislocated the left hip, but fractured the right femur and the right clavicle Following this accident he was in bed for three months

10 At 17 years he was twice admitted to the Mile End Hospital under the care of Dr J I P Wilson and Dr C D Coyle, who kindly gave me permission to transfer him to the London Hospital On the first occasion, according to the mother, " he was trying to stand in the garden when the wind blew him down " He fell on his outstretched hand and broke his left forearm in three places On the second occasion he caught his left foot under a chair and, in attempting to withdraw it, fractured the left femur The left thigh was placed between sand-bags, and the fracture united in five weeks After admission to the London Hospital, while raising himself in bed on the outstretched left hand, he broke the left radius This was a subperiosteal fracture associated with little pain and no displacement.

It is difficult to obtain exact information as to the total number of fractures The mother thinks he has broken his bones " more than 30 times " The bones of the right arm and leg have been more often fractured than those of the left In his early childhood he was much more liable to fractures than later, and the mother states that " at one time when you lifted him you could hear his bones crack and he would cry out with pain " Since the age of 10 years he has fractured his bones much less frequently. With the exception of two falls on the face, in which he broke his nose, the fractures have been produced without violence. They often occur " when his brothers are a little rough with him " Pain is certainly associated with the fractures, but it is neither severe nor prolonged The information with regard to dislocations is less trustworthy but apparently " five or six " dislocations, usually involving the right shoulder but sometimes the left hip, have occurred

Examination —A slightly pale, ill-nourished dwarfed, deformed boy of normal intelligence His total height is less than two-thirds that of a normal control He is unable to walk and stands only with difficulty

Table Showing Weight and Measurements

	Patient		Control of same age
Weight in kilogrammes	24 4		61
Pelvimeter measurements, in cms —			
Biparietal diameter	14		15
Diameter 1 cm in front of ears and 4 cm below parietal eminence	*15 5*		14 5
Occipito frontal diameter	*20*		18 5
Root of nose to base of occiput	15		17
Between malar bones	10 5		11 5
Root of nose to tip of chin, with mouth closed	10		11·5
Intercristal diameter	21		26 5
Measurements by tape measure in cms —			
Total height	105		170
Sitting height	52		82
Circumference of head			
At parietal eminences	*55*		54 5
Just above ears	*50*		53 5
Through root of nose and occipital protuberance	*57*		54
Circumference of chest at nipple line	69		88
Circumference of abdomen at umbilicus	61		68
Circumference of neck	26 5		34
	Right	Left	
Length of upper limb	55	61	76
„ upper arm	21	25 5	30
„ forearm	19	20 5	25
„ hand	15		21
„ lower limb	62	68 5	104
„ thigh	25	33	47
„ leg below knee	21 5	24	37
„ foot	17		25

Skull —The vault of the skull is flattened as if from a weight applied above The occipital bone makes an angular protrusion which is continued forwards, making a wide horizontal ridge from ear to ear There is bilateral temporo-parietal protrusion of the skull, very evident on the right side. This supra-aural enlargement bends the right ear, and to a less extent the left, outward and downward There is no abnormal protrusion of the frontal region The deformity of the skull is so extreme that, whereas every other measurement in the body is much less than that of a control, the bi-temporal and occipito-frontal diameters, together with the corresponding circumference, are actually much greater The bones of the skull appear firm and of normal thickness, the fontanelles are closed, no sutures are palpable, and no craniotabes is found

Jaws and Teeth —There is slight protrusion of the lower jaw so that the lower teeth are opposite the upper Owing to deformity of the lower jaw there remains a slight gap between the incisor teeth when the molars meet. The teeth are regularly spaced and, except for two carious molars, they are sound

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Serum Prophylaxis in Measles References

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Eyes —The orbits are shallow, giving prominence to the eyes Their horizontal axes slope downwards and outwards so that the outer canthus of the eye, especially on the right side, is lower than the inner canthus The sclerotics are a uniform grey-blue of moderate intensity The irides are ill-formed, with poor striation and a dull grey colour The fundi are normal

Face and Neck —The face is flat, though the bridge of the nose is well formed There is some degree of asymmetry owing to mal-union of the nasal septum, from which a spur of cartilage projects into and partly obliterates the left nostril There is scanty hair on the upper lip, but none on the face The neck is short The thyroid gland is normal in size and consistency

Nervous System negative There is no defect of hearing

Spine —There is severe lower dorsal scoliosis with the convexity to the right He can sit up without difficulty, but the sitting height is little more than half the normal

Thorax —The thorax is short and broad There is considerable deformity of the sternum and ribs , a broad, triangular, beak-like projection of the chest wall, commencing at the level of the nipples, protrudes downwards and slightly forwards over the epigastrium The apex of this projection is formed by a buckling of the sternum at the level of the fifth costal cartilage There is no enlargement of the costochondral junctions Axillary hair is absent

Heart and Lungs negative No change is detected in the arteries The blood pressure is 135/95 mm Hg

Abdomen —The abdomen is normal in contour No abnormality is detected on palpation The external genital organs are well developed the pubic hair is normal

Extremities —All four limbs are deformed, the right being more affected and shorter in length than the left The thighs, forearms, and right tibia show anterior bowing There is outward twisting of the shafts of the long bones of the lower limbs, so that the feet are extremely everted Angular deformities and palpable callus are absent There is no enlargement of the ends of the long bones The proximal bones of the right upper and lower limbs are disproportionately short compared to the distal bones, there is no such disproportion on the left side There is some limitation of extension of both elbow-joints, worse on the right side Elsewhere the joint ligaments are lax, so that the range of movement of the shoulders, hips, wrists, and ankles is abnormally wide The muscles are hypotonic The hands and feet are short but are not otherwise deformed (For clinical discussion see Bronson[1])

Urine normal

Blood Count —Red cell count, 1,900,000, hæmoglobin, 75 per cent , colour-index, 0 7, white cell count, 5240, polymorphs, 60 per cent , eosinophils, 1 5 per cent , small lymphocytes, 27 per cent , large lymphocytes, 8 5 per cent , large hyaline cells, 2 5 per cent , basophil cells, 0 5 per cent

Wassermann Reaction in Blood negative

Blood-urea, 0 030 per cent

Glucose-tolerance Test —Fasting blood-sugar=0 091 per cent 50 g glucose by mouth Blood-sugar, after 45 minutes, 0 105 per cent , after two hours, 0 083 per cent

Serum Calcium, 10 3 mg per 100 c cm

Inorganic Phosphate in Serum, 3 8 mg per 100 c cm

Calcium Output —The calcium output was estimated in the urine and fæces over a period of nine days, during which the patient was kept on a weighed diet of known low calcium content The energy value of this diet was 1150 calories daily During the nine days distilled water was used in the preparation of all his food and drinks The fæces were divided into three-day periods by the oral administration of 0 3 g of carmine alum lake every third day The urine was obtained in 24-hour specimens I am indebted to Dr P Morton for some of the analyses The record of the calcium exchange is tabulated below, the figures being milligrammes of Ca per three-day period

Record of Calcium Exchange

Three-day period	Intake	Output			Balance	
		Fæces	Urine	Total		
			Patient			
	mg					
I	153	283	349	632	−479	
II	153	183	293	476	−323	Average −269 mg
III	148	122	240	362	−214	
			Control			
I	132	248	110	360	−226	
II	95	352	37	389	−294	Average −256 mg
III	268	444	41	485	−217	
IV	251	207	170	377	−126	
V	256	369	190	559	−303	
VI	278	508	110	618	−340	

The control was a male patient of 19, weighing 61 8 kg and observed under similar conditions as to diet

On such a low calcium intake there is, of course, a negative calcium balance Discarding Period I in both patient and control, it is found that the calcium balance is similar in both cases (patient −269 mg, control −256 mg) It is realised that there may be fallacies in the experiment, since on the one hand the calcium intake was so inadequate, and on the other the dwarfing of the patient made it very difficult to devise satisfactory control observations

Radiological Report

I am indebted to Dr M H Jupe for the radiograms and for the following report

Skull —The vault appears too large in proportion to the bones of the face The distance between the tables is reduced so that the bones appear thinner than normal This is especially noticeable from the bregma to the region of the lambda at which point there is an angular projection From here the occiput sags downwards considerably There is also loss of prominence in the frontal region of the skull The structures forming the base of the skull appear to be flattened in their vertical dimension This probably accounts for the lack of prominence of the mastoid shadows, and for the slight shallowness of the sella turcica which in other respects appears normal

Long Bones —All the long bones show shortening and bowing The shadows of the bones are hardly more dense than those of the surrounding soft tissues There is very great thinning of the cortex, more noticeable on the convex side The spongiosa both of diaphyses and epiphyses is extremely faint, so that in places the normal pattern cannot be discovered The epiphyseal lines appear normal There is very little evidence to indicate the sites of the old fractures However, in the region of the lesser trochanter of the right femur there are two fine transverse lines of comparative sclerosis running parallel There is nowhere evidence of the formation of callus nor of periosteal new bone There is no suggestion of cyst formation

Ætiology

There have been almost as many theories to explain the process at work in the bones as there have been observations Many of these are based on histological evidence Most authors have found a decrease in the osteoblasts with defective production of osteoid tissue [2] [3] Schuchardt [4] postulated defective periosteal ossification (periosteal dysplasia) to explain the thinning of the corticalis Scheib [5] and Harbitz [6] thought that there was both excessive resorption of bone and halisteresis Most authors agree that the epiphyseal cartilages are normal Bauer [2] claimed that the calcification of cartilage and of osteoid tissue was normal as seen in histological sections Harbitz,[6] however, thought the zone of provisional calcification abnormally thin and in places absent

None of these suggestions bears on the underlying cause of the disease Bauer [2] suggested deficiency or lowered vitality of all tissues of mesoblastic origin and showed histological abnormalities in bone, cartilage, and tooth pulp Jansen,[7] on the other hand, suggested an embryonic defect due to abnormal amniotic pressure

The glands of internal secretion have been suspected. Nicklas [8] and Bauer [2] both report cases with congenital goitre found at autopsy However, it is open to question whether the fœtal thyroid functions, and hence whether it can cause a disease which begins in utero Meissner [9] described two cases in young girls, one with premature and the other with abnormal sexual development The findings of Malcolm [10] that, in dogs, administration of fresh pituitary substance by mouth caused an increased output of calcium, led Klose [11] to suspect the pituitary There are two cases recorded which show definite enlargement of the parathyroids The seven-months fœtus described by Bauer [2] had four enlarged parathyroids, the largest the size of the adult gland (3 mm diameter) Histologically these showed hyperplasia He relates that Dietrich [12] described another case

Chemical Findings

Observations on the inorganic constituents of the bones are scarce In 1857 Barker [13] found that the bones in a congenital case yielded 33 3 per cent of ash, while Regnard, quoted by Enderlen,[14] found

Plate showing blue sclerotics.

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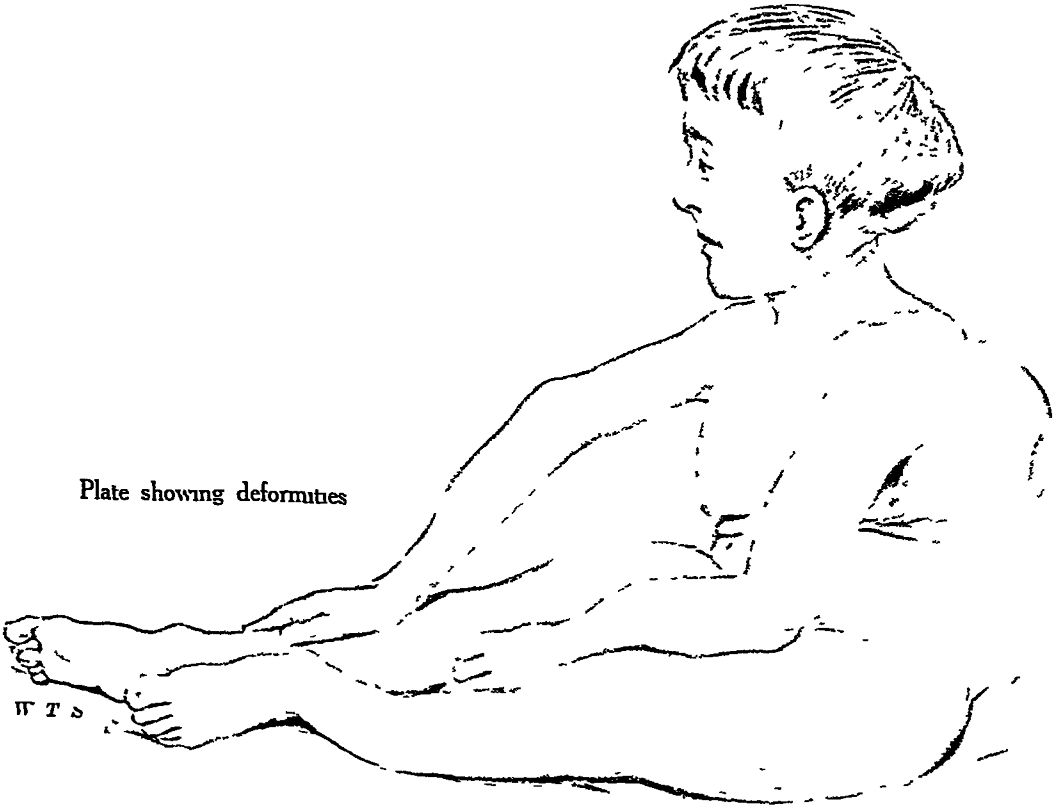
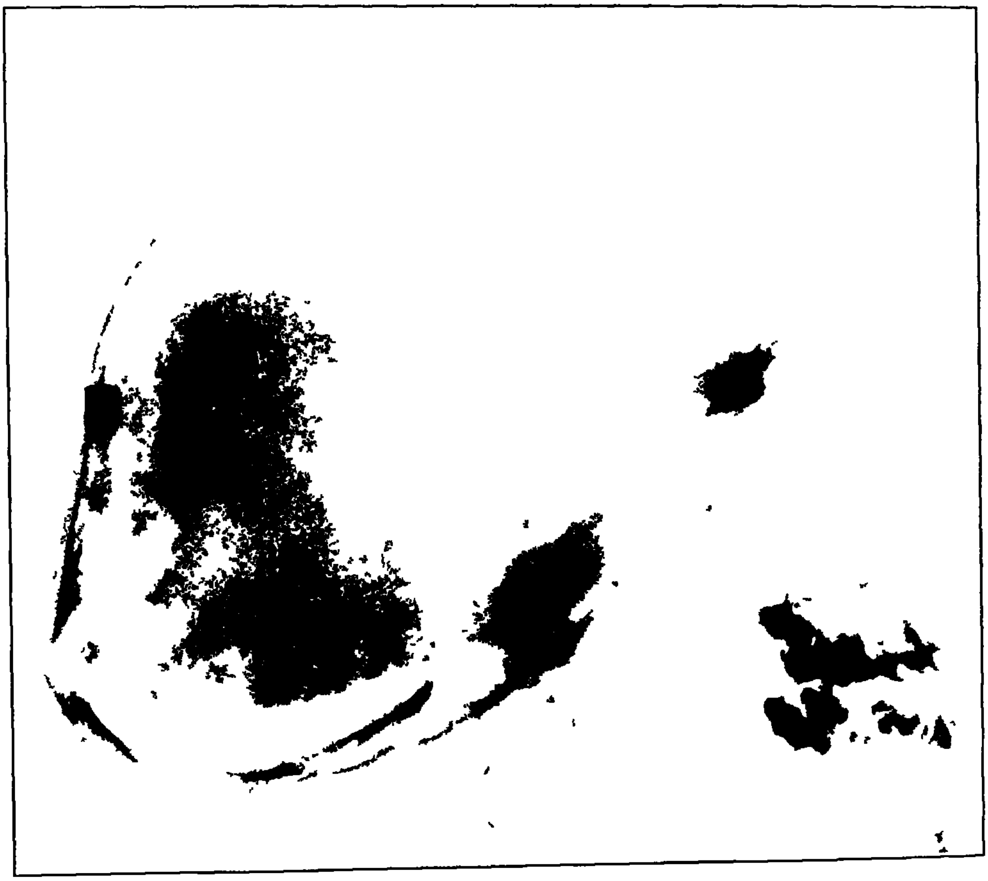
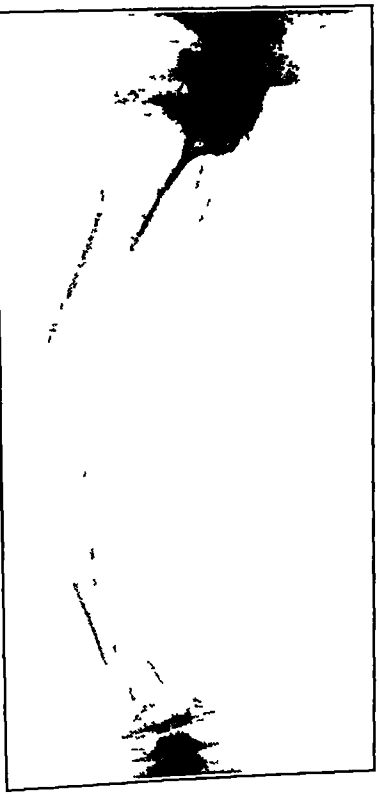
Plate showing deformities



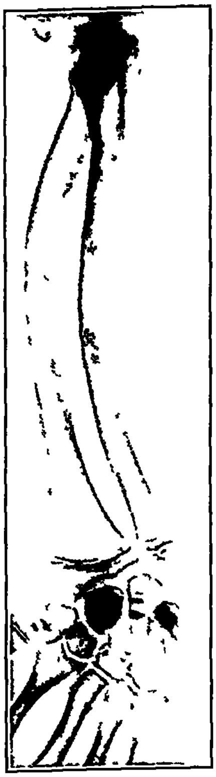
A CASE OF OSTEOGENESIS IMPERFECTA
(DR DONALD HUNTER)



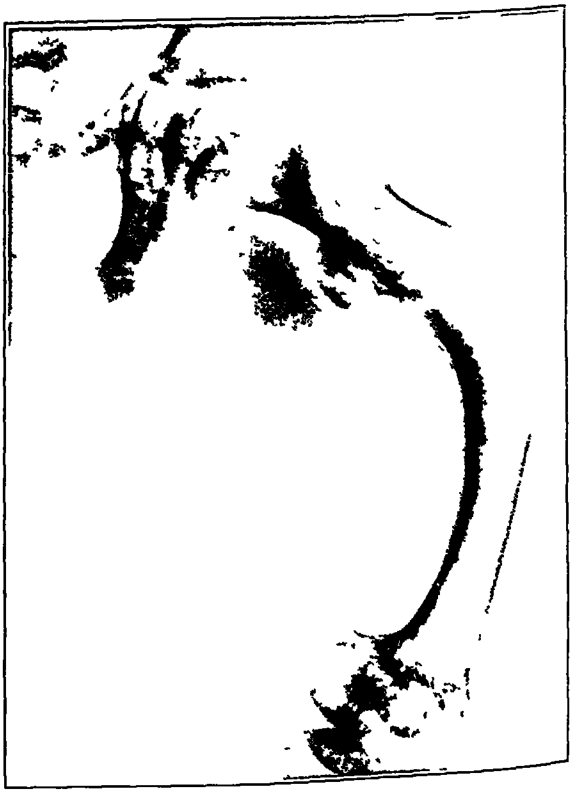
Osteogenesis Imperfecta Radiogram of Skull.



Tibia and Fibula



Radius and Ulna



Hip-joint and Femur

24 per cent. of ash. Normal bones examined by Enderlen yielded 68·5 per cent. of ash.

The blood calcium and phosphorus were determined by Flagstad, Zanger, and Leven [15] in three cases and found to be normal. In the case here recorded the findings were normal. Schwarz and Bass [16] and Bookman [17] found calcium retention slightly decreased in cases of the congenital type of the disease. From observations on a child of 7 lasting over more than two years Schabad [18] concluded that there was increased loss of calcium and a corresponding loss of phosphorus in osteogenesis imperfecta.

In the case here recorded there was no increased loss of calcium compared to a normal control. However, our patient is ten years older than the oldest case described above, and it is conceivable that as the tendency to fractures becomes less the calcium exchange becomes more nearly normal. There is a large and increasing amount of evidence that further investigations of the blood chemistry, metabolism, and morbid anatomy of this disease, and especially of the younger cases, may be rewarded with some success. This evidence concerns the function of the parathyroid glands and is partly physiological and partly pathological.

Physiological Considerations.

The exact mode of action of the parathyroid hormone is unknown. However, it has been established in dogs and in man that active extracts of the parathyroid glands cause considerable excretion of calcium from the bones.

The pioneer work was done by MacCallum and Voegtlin,[19] who found a reduced calcium content in the blood-serum of dogs after parathyroidectomy. This observation has since been abundantly confirmed, but their statement that such dogs showed an increased excretion of calcium has not been corroborated. Thus arose the erroneous idea, to which Salvesen [20] later contributed, that parathyroidectomy was associated with a lowered threshold for the excretion of calcium by the intestines. It was supposed that the resulting drain on calcium kept the blood-serum calcium at a low level. Greenwald and Gross [21] [22] have demonstrated that the true conception of the relation of the parathyroid glands to calcium excretion is the very reverse of that stated above, for their dogs after parathyroidectomy actually showed a *decrease* in the excretion of calcium. A direct means of settling this vexed question appeared when the work of Hanson,[23] Berman,[24] Collip,[25] and Hjort, Robison, and Tendick [26] made available a potent extract of bovine parathyroids.

Thus, in a further series of experiments, Greenwald and Gross [22] injected normal dogs with Collip's parathyroid extract and found that the increased concentration of calcium brought about in the blood-serum was followed by an *increase* in the excretion of calcium in the urine and fæces. Similarly, during certain investigations on lead poisoning Hunter and Aub [27] showed that, in five patients out of six, Collip's parathyroid extract (Eli Lilly) caused marked elevation in the blood calcium. In all six patients calcium excretion in the urine and fæces was very considerably increased. Thus, in the accompanying chart is shown a metabolism experiment on one of our patients extending over a period of six weeks. Collip's parathyroid extract was given by intramuscular injection in increasing doses and the blood calcium was thereby raised from 9·5 to 14 mg. per 100 c.cm. The effect of the calcium output can be judged from the chart. In the urine this was increased from 0·05 g. to 0·75 g. per three-day period. Though the effect was less marked in the case of the fæcal output, the total result was to increase the negative calcium balance *three-fold*.

We maintain, as, indeed, did Greenwald and Gross in dogs, that this increased calcium excretion occurs at the expense of skeletal deposits of calcium.

Pathological Considerations.

The physiological observations quoted above gain in interest when we consider the large number of cases reported in the literature where parathyroid tumours are associated with one or other of the so-called "malacic diseases" of bone. Erdheim [28] was the first to point out enlarged parathyroids in cases of osteomalacia. Hoffheinz,[29] rejecting all cases where the enlargement of the parathyroids was indefinite or inadequately described, collected from the literature 45 cases with *measurable* enlargement of one or more parathyroids. Of these 27 were associated with definite bone disease, including 17 of osteitis fibrosa, eight of osteomalacia, and two of rickets. Sometimes more than one parathyroid gland was affected. He quoted increases in size up to 4·5 by 2·1 by 1·2 cm. The histological change was usually a hyperplasia. Dawson and Struthers [30] have described a case of osteitis fibrosa with a parathyroid tumour the "size of a walnut." Gödel [31] has published a case with the clinical appearances of osteitis fibrosa, in which at a partial autopsy he found two parathyroid tumours, one measuring 10 by 2 cm., and the other 5·4 cm. diameter. Lastly, Mandl [32] published a case of osteitis fibrosa in which the daily excretion of calcium in the urine was 54 mg. Removal of a parathyroid tumour (2·5 by 1·5 by 1·2 cm.), which Erdheim and Maresch thought was probably malignant, was followed by a fall in the daily excretion of calcium in the urine to 7·6 mg., and by improvement of the clinical condition. The blood calcium was not estimated before operation (personal communication).

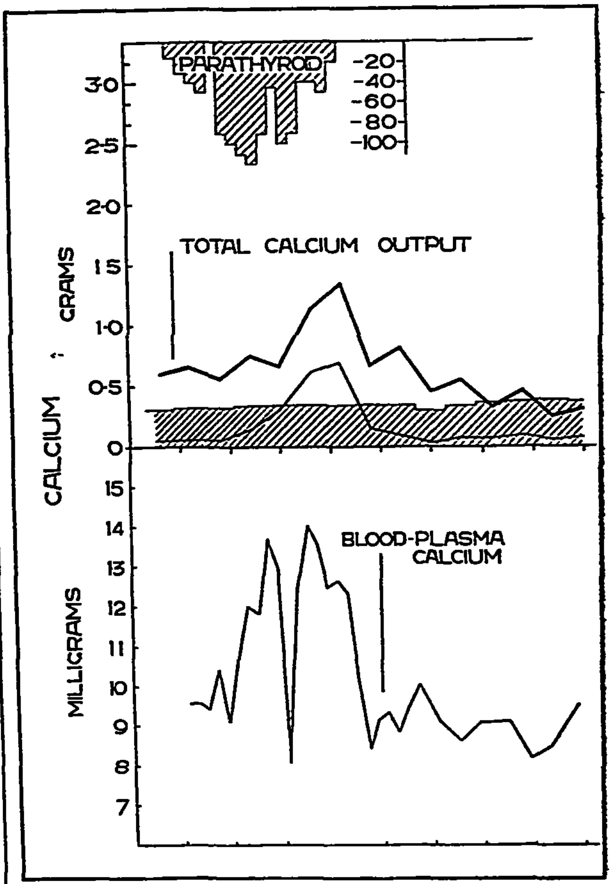


Chart showing the effect of parathyroid extract on the blood calcium and on the calcium excretion.

The interval marks on the abscissa represent five days.

In the upper portion of the chart the upper block represents treatment with parathyroid, the adjacent scale indicating units per day. The lower blocks represent the calcium intake in three-day periods. The faint line represents the excretion of calcium in the urine expressed in output for three days. The heavy line is the total excretion of calcium in urine and fæces for three-day periods. The distance between heavy line and blocks, therefore, represents the positive or negative calcium balance.

In the lower portion of the chart is shown the blood-plasma calcium.

Without further evidence it is unjustifiable to assume that these tumours are primarily responsible for the changes in the bones However, the possible occurrence of parathyroid hyperfunction must be borne in mind and investigators should endeavour to elucidate this point

In order to do this we would suggest the following investigations in all suitable cases (1) Estimation of the calcium and inorganic phosphate in the blood-serum (2) Estimation of the total output of calcium and phosphate in a series of controlled periods where the intake is known accurately (3) In autopsies the anatomical and histological examination of the glands of internal secretion paying special attention to the parathyroids

Summary

A case is recorded of osteogenesis imperfecta associated with blue sclerotics The family history is negative Corresponding to the early onset at three weeks there is dwarfism and deformity of the skull The long bones have been fractured at least 30 times without violence, the left tibia alone escaping Radiograms show the classical shape of the skull, the long bones are short and bowed and show an extremely thin corticalis and faint spongiosa The blood-serum calcium and inorganic phosphate are normal The total excretion of calcium on a known low calcium diet is the same as in a normal control The effect of Collip's parathyroid extract in raising the blood calcium at the expense of skeletal calcium is discussed Reasons are given in support of a more complete inquiry into the calcium and phosphorus metabolism in cases not only of osteogenesis imperfecta but also of osteitis fibrosa

My thanks are due to Lord Dawson for allowing me to investigate and to publish this case, to Mr W T Shiells for the drawings, and to Mr H J Suggars for the prints of radiograms

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GASTRO-DUODENOSTOMY

FURTHER EXPERIENCES

BY E R FLINT, F R C S ENG,
ASSISTANT SURGEON, GENERAL INFIRMARY, LEEDS

IN THE LANCET (1923, ii 508) I reported a series of 53 cases of chronic duodenal ulcer, in 50 of which I had done gastro-duodenostomy, in the other three I did posterior gastro-enterostomy, in two, owing to dense adhesions, and in the other because a large inflammatory mass around the ulcer made it unwise, in my opinion, to attempt the former operation I have continued practising the operation, and now wish to report a series of close on 200 cases

Points in Technique

I repeat that it is quite easy to mobilise the duodenum in practically every case In the last series I have done gastro-enterostomy in six cases, twice because the pancreas completely surrounded the second part of the duodenum, twice owing to extensive adhesions, and twice because I had to remove the gall-bladder at the same time and was afraid the gastro-duodenostomy anastomosis might be caught up in the scar of the gall-bladder bed In all the other cases mobilisation of the duodenum was easily accomplished

One detail in the technique I believe to be important and that is to free the angle between the second and third parts of the duodenum, where it turns to the left to cross the spine, it is better to free this end of the second part rather than the upper angle where the first and second parts meet as at this point there are often very embarrassing vessels

As for the rest of the technique, it is much the same as that of gastro-enterostomy, except I do not use a clamp on the duodenum, and I do not stitch the gastric mucosa Dragstedt has shown that in dogs one of the most satisfactory methods of establishing an experimental peptic ulcer in the pyloric portion of the stomach is to insert sutures in the mucosa, ulcers are much more difficult to create nearer the cardia In case there should be anything in this applicable to man I release the stomach clamp after suturing the peritoneum on the posterior side of the anastomosis, and after opening the viscera, secure the obvious vessels and then carry the needle for the second row of sutures down to, but not through, the mucosa By omitting the duodenal clamp I have been able to make one or two interesting observations One can pass a finger into the duodenum and feel the ulcer crater in some cases, and this helps one to be sure that the cautery (used to destroy the ulcer) is applied accurately to the base of the ulcer Done from the outer side alone this is not always such an easy thing to be sure of A second point has reference to suturing over the ulcer I have done this consistently, as most surgeons do, to prevent a possible perforation later, and also to close the pylorus temporarily and thereby give rest to the ulcer area; and I think I may say that I have carried out this little manœuvre with as much precision as anyone who does not actually pass a ligature round the gut Yet, since omitting the duodenal clamp and exploring the interior of the duodenum after applying these sutures I have, not infrequently, been able to pass my forefinger into the stomach easily and at other times have come up against a diaphragm which would allow a large lead pencil to pass, and this diaphragm has sometimes been due to the pathological stenosis and not to the sutures I have never found a complete block established by the stitches

After-treatment

There is one important point in after-treatment It is generally thought that vomiting is more pronounced immediately after gastro-duodenostomy than after gastro-enterostomy, and in my experience this is true I was much puzzled to account for this, and was inclined to think at first that it was due to the anastomosis becoming involved in adhesions; I felt so sure of this that in one of my earlier cases, where vomiting was very persistent I reopened the abdomen about the fourth day after the first operation, only to find the anastomosis quite patent and entirely unincumbered by adhesions I found the explanation, or what I believe to be the *explanation, quite* by accident when operating on a dog In this animal merely touching the duodenum and the pyloric part of the stomach is sufficient to throw them into the most violent spasm, indeed, they become as hard and firm as a piece of solid rubber, and *remain in this* condition so long as they are being handled The intestine beyond the duodenum does nothing comparable to this Though we do not see anything in man *in anything like this* degree, we do see minor states of spasm, and I have no doubt the handling of the duodenum, especially whilst mobilising it, throws it into an irritable state from which it takes some time to recover. Now I put all my cases on to continuous rectal glucose immediately after operation, and do not allow them anything by mouth for 24 to 48 *hours*, and since doing so I have had no more trouble from vomiting than after gastro-enterostomy.

Results

There have been two deaths, *both patients* were very emaciated before operation and I *think might* have been saved if I had kept them longer on rectal glucose and added intravenous glucose and hypertonic chloride to the pre-operative treatment. Three cases returned with some abdominal discomfort, flatulence and marked constipation, and were, apparently, cured by medical attention to the bowels All the other cases, so far as I have been able to trace them have had no trouble at all, they eat anything and abuse their stomachs with as much *freedom from discomfort* as the average normal person.

There have been no instances of attacks of discomfort, flatulence, and diarrhœa following indiscretions in diet and so on, such as are seen after gastro-enterostomy in a certain number of *cases*—probably *from 10 to 15 per cent.* This sequel *seems to be due* to the stomach emptying rapidly into the jejunum a part which is not intended to receive the stomach contents direct, and without a sufficient mixing of the contents with the important *secretions poured* into the duodenum. This is what the American literature speaks of as the "dumping *stomach.*" In this connexion the recent paper by Mellanby (The Lancet, July 31st, 1926) showing the close relationship between acidulated *food in the duodenum* and *the* effective secretory activity of the liver and pancreas, is interesting.

I have had no anastomotic ulcers when doing *gastro-duodenostomy* for chronic duodenal *ulcer* There has, however, been one certain, and *another* doubtful, case after doing the operation for a gastro-jejunal ulcer following a previous gastro-enterostomy This is rather a different thing from an anastomotic ulcer after a primary gastro-duodenostomy nevertheless it makes one hesitate in asserting that a new ulcer is never to be expected after this operation. If such an event should arise, however, one would still be able to do a *posterior* gastro-enterostomy, instead of the more serious and usual operation of partial

THE IMPORTANCE OF MOTILITY OF BACTERIA

IN CLASSIFICATION AND DIAGNOSIS WITH SPECIAL REFERENCE TO *B. pseudotuberculosis rodentium.*

By J. A. ARKWRIGHT, M.D. Camb., F.R.C.P. Lond., F.R.S.

(From the Bacteriological Department, Lister Institute)

The character of motility was *formerly* highly rated as a ready and reliable guide in classification and diagnosis of bacterial cultures and no doubt the ability of a species or group of bacteria to form flagella must be recognised as very important from the point of view of evolution and classification.

As the result of laboratory experience in connexion with infective intestinal diseases, the use of motility as a diagnostic character has been largely abandoned in practice or given a less important position, since the *motility even of normally highly* motile organisms *such as B. typhosus may* be difficult to demonstrate, except in cultures kept under special conditions or of a certain age, and recently isolated strains sometimes are non-motile, or very slightly motile, when first examined. *Of recent years it has been recognised* that completely non-motile varieties of certain species, usually motile, such as *B. typhosus* or *paratyphosus*, may be met with. In 1903 Smith and Reagh described *motile and non-motile* forms of the hog-cholera bacillus and their distinctive agglutination peculiarities. Weil and Felix (1917) have emphasised the same features in the *proteus* group in dealing with their *B. proteus* X19 and its *H* amd O forms The same authors and their colleagues have extended these observations to the similar variants in the typhoid-paratyphoid *group, and Balteanu (1926) has* recently shown that *V. choleræ* can also be obtained in an O or non-motile form, which has characters analogous to those found in *B proteus*, &c.

The absence of motility is often a temporary *feature* of a culture, and may be only the fugitive result of growth on special conditions—e g, *on* carbolic agar (0·1 per cent.) or in media of low nutritive value. A non-motile variant may, on the *other hand*, be apparently permanent and irreversible. The presence or absence of motility under these different circumstances has been consistently correlated with definite changes in the agglutination phenomena.

Motile *bacilli* of the intestinal group agglutinate in loose, flocculent, cumulus-like clumps, whilst non-*motile* forms agglutinate *more* slowly, often to a much lower titre, and in small clumps which are deposited in larger or smaller coherent granules It has been shown, moreover, that after heating an emulsion of the motile form to 100° C. for one or two hours or *even* for a shorter *period*, agglutination only occurs in granules, and the heated *emulsion* may be quite unable to excite in rabbits the production *of* agglutinins for the flocculus-forming or heat-labile antigen.

Dysentery bacilli, being non-motile, do not agglutinate in loose floccules, but mainly in coarse granules.

B. pseudotuberculosis rodentium has in the past *generally been* considered a non-motile *organism*, and it is safe to *say that* the great majority of bacteriologists of the present day so regard it A. Pfeiffer (1889), who originally described this bacillus, Zlatogoroff (1904), MacConkey (1908), Petrie and Macalister (1911), and Kakehi (1916), all categorically stated that it was non-motile There have, however, been some dissentient voices. Galli-Valerio (1902), who *pointed out* that this bacillus was with difficulty to be distinguished *from B pestis*, affirmed that the latter was non-motile in spite of *the contrary* opinion of Kitasato; he does not however, actually mention this characteristic in speaking of *B pseudotuberculosis* The only writers *who claim* to have observed motility are Kossel and Overbeck (1901) *and* Byloff (1906). The former, after describing their failure to *demon-*

strate motility of *B. pestis* grown at various temperatures, state that all of three strains of *B pseudotuberculosis rodentium* which they examined were motile when grown at room temperature, but not at 37° C They made these observations at low temperatures because Mironesco (1899) had reported on the motility at similar temperatures of a bacillus somewhat resembling *B typhosus* which was non-motile at 37° C Byloff said that motility was only slight and not readily observed. Both Klein (1899) and Byloff (1906) succeeded in staining flagella, and stated that they were terminal, short, and single Plasaj (1921), while admitting that he did not observe motility, stated that a single flagellum could be stained, but could only be demonstrated clearly in few individual bacilli He describes its position as not terminal but "extrapolar," and doubts whether bacilli with terminal flagella could belong to the same species

Resemblances between B pseudotuberculosis rodentium and B. pestis.

The characters of *B pseudotuberculosis rodentium* have been very thoroughly examined on account of its close resemblance to the plague bacillus MacConkey (1908) and Petrie and Macalister (1911) showed that the fermentation reactions of the two were almost identical.

It was pointed out by Zlatogoroff (1904) that *cross-agglutination* could be obtained between the two species This was confirmed by subsequent observers, and MacConkey (1908) and Rowland (1912) confirmed the existence of cross-immunity reactions, and showed that guinea-pigs could be protected against *B. pestis* by a vaccine made with the *B. pseudotuberculosis*

The resemblance between the two organisms was so close that Petrie and Macalister (1911) found great difficulty in deciding to which species certain strains isolated from rats belonged Almost the only reliable distinguishing character appeared to be the ability of *B. pestis* to produce acute septicæmia and death in rats.

The present writer recently had occasion to examine broth cultures of *B pseudotuberculosis rodentium* microscopically for the presence of clumps The cultures grown at 37° C were usually quite non-motile, but in the case of one strain a very few motile bacilli were seen He was at that time unaware of Kossel and Overbeck's observations It was at first supposed that these were contaminants The strains were plated on agar, and appeared to be pure with characteristic colonies Single colonies were picked off and grown in broth at 37° C. and at room temperature (18°–22° C), since it had been noticed that agar cultures at room temperature gave a more copious growth, which formed a more uniform and stable emulsion than those grown at 37° C It was now found that broth cultures at 20° C. were motile Eight strains of *B pseudotuberculosis rodentium* were examined, of which two had recently been isolated from guinea-pigs by Mrs Barratt, and six were obtained from the National Collection of Type Cultures Of these, only one was slightly motile at 37° C , but all were motile when grown at 20° C Some were very highly motile, others much less so. The difference in degree of motility consisted in the number of obviously motile organisms which swam across the field of the microscope One strain which was at first only very slightly motile, after a few subcultures, was observed to be very much more motile These cultures, after having been at room temperature for two days, were placed in the cold room, and were still motile after a month at −5° to +5° C. The identity of these strains with the classical *B. pseudotuberculosis rodentium* was shown (1) by obtaining the characteristic reactions in carbohydrates, &c , (2) by inoculating guinea-pigs, some intraperitoneally and others intracutaneously—typical lesions resulted in the glands and organs, and from these animals the same organism was again isolated from the blood and organs in pure or nearly pure culture, (3) by cross-agglutination with *B pestis* Agglutinating sera were prepared from two of the strains, which both agglutinated all the eight strains of *B pseudotuberculosis* and also 10 strains of *B pestis* The titre of the sera was 1 in 1280–2560 for the homologous species and 1 in 160–640 for the strains of *B pestis* All the emulsions for these tests were grown at 20°–26° C

The agglutination reactions showed that *B pseudotuberculosis rodentium* conformed to the rule for motile bacteria, in that emulsions heated at 56° C for 30 minutes agglutinated in loose flocculi to the limit of the titre, but after being heated at 100° C for one hour, they did not clump in this manner Emulsions heated at 100° C in the case of two strains were agglutinated in granular form at a lower titre, 1/160 to 1/1280 respectively The agglutination of *B pestis* was not flocculent, but occurred chiefly in very small clumps, many of which were only visible under the microscope, but formed a very definite agglutination deposit with complete clearing of the supernatant The emulsions of *B pestis* were no longer agglutinable after being heated at 100° C

The motility of *B. pestis* has been almost universally denied, but Kitasato stated in his original description that it was slightly motile, and Gordon (1897) claimed success in staining flagella and described the appearance of an occasional motile bacillus from agar cultures It is, therefore, interesting to find that the agglutination of *B pestis* by the serum made with *B pseudotuberculosis* is due to heat-labile substance such as is usually associated with flagella Cultures grown at different temperatures of all the strains of *B pestis* used in the present investigation have been examined very carefully on several occasions, but no suggestion of motility was ever detected

Motility in Relation to Parasitism

It is also of interest to note that the non-motile form of *B pseudotuberculosis rodentium* appears to be that which is adapted to parasitism, since the temperature at which alone motility can be observed —viz , 18°–26° C —is not one which the bacillus would experience in the mammalian animal body. This adaptation of the non-motile form to parasitism is perhaps analogous to the occasional isolation of non-motile *B typhosus* from carriers and cases of typhoid fever, and the high virulence of a non-motile form of *B paratyphosus* A isolated by the present writer A somewhat parallel case to the cross-agglutination of *B pestis* and *B pseudotuberculosis* exists in the relationship between *B whitmori* and *B mallei* (Stanton and Fletcher, 1925) These two bacilli produce very similar diseases, melioidosis and glanders, but may have different appearances in culture, and while the former is motile, the latter is non-motile

Summary

(1) *B pseudotuberculosis rodentium* is motile when cultivated at 18°–26° C , but not as a rule when grown at 37° C This is in accordance with the statement of Kossel and Overbeck, made in 1901

(2) This observation is also in harmony with the statements of Klein (1899), Byloff (1906), and Plasaj (1921) that they had demonstrated flagella in stained films of this bacillus

(3) This organism also shows evidence of possessing heat-labile and heat-stable antigens like the bacteria of the typhoid-coli group

(4) It would appear that the motility of *B pseudotuberculosis* when grown at 20° C is sufficient to distinguish it from *B pestis*

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(Continued at foot of next page)

CONCENTRATED CARBON-ARC LIGHT.

A SIMPLE METHOD TO IMPROVE THE EFFICIENCY OF THE FINSEN TREATMENT

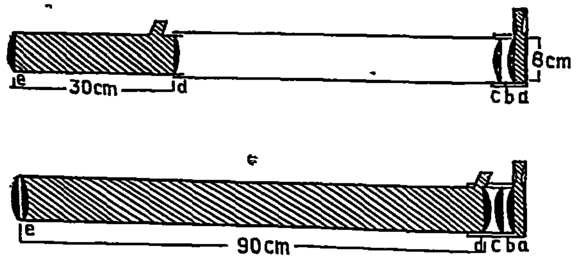
By SVEND LOMHOLT, M.D , O B E

(*From the Finsen Institute, Copenhagen Director A Reyn*)

Finsen's treatment of lupus vulgaris with concentrated rays of a carbon arc remains the unrivalled *traitement de choix* of this troublesome disorder, though it is rather expensive The strong heat, resulting from the powerful heat rays of the carbon arc, prevents the raising of the intensity of the short wave irradiation above the amount produced by a carbon arc of 50 amps , 55 volts and filtered through 31 cm of water The construction of this is shown in the drawing (Fig 1)

Finsen made many attempts to improve this construction, and especially to reduce the heat, but without any perfect success At last he restricted himself to a water filter of about 30 cm length (Fig 1) which he thought would remove all the infra-red radiation of the light Yet it is clearly seen from the Aschkinass classical investigations on the absorption of water [1] (Fig 2), to which my attention was first drawn by Dr W Kuhn and Dr D Dennison, that a fairly large proportion of the innermost infra-red rays pass through a water filter of 31 cm , as used in the original Finsen lamp and still more through the 16 cm of the Finsen-Reyn lamp, the two constructions most commonly used at present for local carbon-arc light therapy For the therapeutical use of the carbon-arc light this fact is most important

Fig 1.

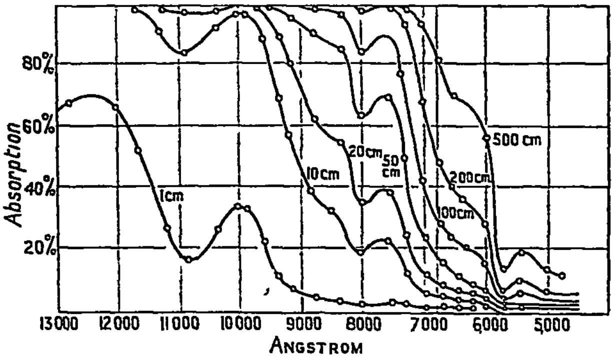


Finsen's original model author's modification a, b, c, d, e, Quartz lenses The hatched area indicates distilled water

In the first place the maximum of energy of the arc light lies at about this place in the spectrum (see the diagram (Fig 3) made by Prof E S Johansen showing the distribution of energy of the carbon-arc light) In the second place the infra-red rays are especially inconvenient in the Finsen treatment, as compared with the luminous rays Sonne [2] showed that the skin of a man's forearm will usually stand an average irradiation of 3 11 g calories per square cm per minute of luminous rays without any unbearable pain, but only 1 77 g calories of the inner infra-red rays, because the luminous rays penetrate much deeper into the skin (several centimetres) than the invisible. Thereby their energy is distributed throughout a much thicker layer of the tissue

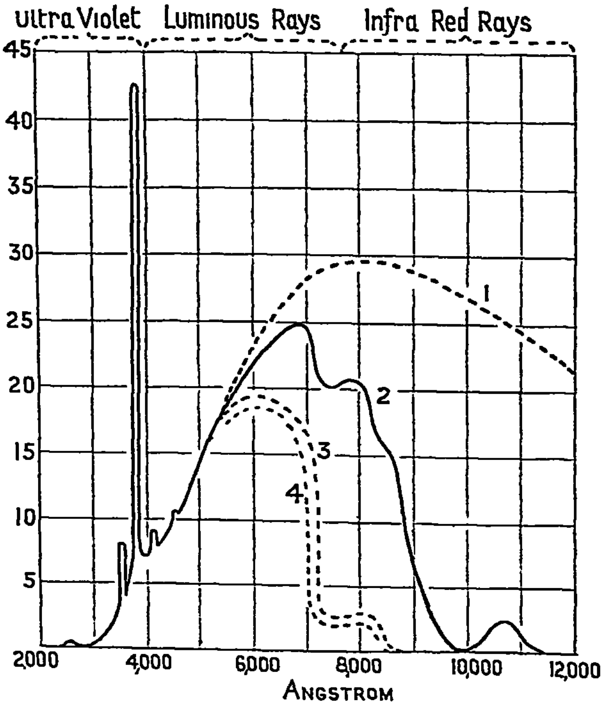
From the curves of Aschkinass and Johansen it seemed evident that an increase of the water filter up to 100 cm of length must be very favourable to make the light column less hot and less injurious to the skin This increase will not affect the efficient " chemical " part of the spectrum. The thermal energy of a light column (from the arc lamp described above), which had passed through the original apparatus of concentration, was now accurately measured and compared with the energy of the same column after it had passed an apparatus with a filter of 90 cm water For these measurements a special instrument was constructed by Mr J. C Jacobsen; a Dewar's vessel was blackened inside and filled with

Fig 2



Absorption of light in water (after Aschkinass)

Fig 3



Energy of the light from a carbon arc (after Johansen) 1 Total energy 2, 3, 4, Energy passing a water layer of 16 cm (Johansen), of 100 cm (calculated after Aschkinass), and of 120 cm respectively

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[2] Acta medica Scandinavica, 1921, p 374 ff

Motility of Bacteria References (continued)

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water The opening was closed with a plate of quartz except for a small slide in the upper side to permit the introduction of a thermometer We found this instrument ideal for the purpose The measurements gave the following figures

	(1)	(2)	(3)	
Original construction	125	124	114	gr calories per min
New "	70	76	70	" " " "

Thus, the increase of the water-layer from 31 to 91 cm diminishes the heat of the light column by more than 33 per cent, corresponding well to the figures given by Aschkinass and Johansen (Figs 2 and 3)

The therapeutic experiments gave a result which was in perfect accordance with this The treatment with the new apparatus proved to be almost painless, even to very sensitive patients Fortunately, the therapeutic effect—i e, the reactions on the skin (redness infiltration, and bulla formation)—remained completely unaffected To make certain of an unreduced therapeutical effect, a series of six double biopsies were made on six patients, who received each one spot treated with the original and one spot with the new construction Three of the patients were treated on lupus plaques three on sound skin The examination showed that the histological changes were perfectly equal as far as each of the six different pairs were concerned The most important result of the described reduction of the heat rays is that it permits of a corresponding increase of the irradiation, and even somewhat stronger up to about 50–60 per cent, without being painful to the patients The reaction of the skin after one hour of this radiation seemed to be not much inferior to that of two hours of the original construction These facts were also confirmed by histological examinations The perfect tolerance of the patients under this very strong treatment is probably due to the fact that the part of the light which is removed by the thick water column contains just the infra-red irradiation which is especially painful to the skin because of its superficial effect and absorption

Conclusions

1. Water is an ideal filter to be used in carbon-arc therapy It lets the efficient ultra-violet rays pass untouched even through thick layers

2 A water layer of 91 cm absorbs almost all the infra-red and a good deal of the outer red rays in the light—i e, of rays of 7300 Angstrom still about 50 per cent are absorbed Calometric measurements showed that a light column, which has passed an apparatus of concentration with a water filter of this thickness, contains 30–45 per cent less heat than a corresponding column that has passed one of the original apparatus with filters of 31 and 16 cm (Finsen and Finsen-Reyn lamps) The filter does not diminish the therapeutic effect of the light

3 According to Sonne's investigations the absorbed infra-red and red rays represent the part of the irradiation of the carbon arc most inconvenient for light therapy since they are absorbed in the uppermost layer of the skin in which very sensitive part of the body they produce a strong heating that gives rise to severe pain Consequently, the elimination of them will permit an increase of the intensity of the irradiation which is considerably stronger than the said 30–45 per cent that is their part of the thermical energy of a carbon-arc light column, which remains after it has passed a water layer of 16–31 cm

4 Clinical and histological observation showed that it is possible to increase the biological effect of the concentrated carbon-arc light by using water filters thicker than the ordinary ones and this considerably more than indicated by the 30–45 per cent mentioned

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COST OF IRISH MENTAL PATIENTS —The Department of Local Government of the Irish Free State has issued a comparative statement showing the annual cost of maintaining mental patients in the State institutions The figures range between £55 16s 11d at Kilkenny and £40 12s 8d at Castlebar, the average is £19 1s 4d In most cases there has been a reduction as compared with 1925

THE TREATMENT OF TUBERCULOSIS BY MR SPAHLINGER'S METHODS

BY THOMAS NELSON, B M, B CH OXF
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TO THE BROMPTON HOSPITAL

FROM time to time certain persons in this and other countries but particularly in this country, strongly advocate the expenditure of large sums of public or private money to assist Mr Henri Spahlinger of Geneva to apply his secret remedy for tuberculosis to "sufferers" in general Hitherto there have been published for the medical profession and others interested in this matter few if any, accurate records of cases treated by this method The only data on which to form an opinion so far available have been of the nature of eulogies of this remedy citing remarkable cases of "cure" And these are to be found mostly in the non-medical press

Selected Cases Treated in 1913–14

Yet we have in this country a most careful and full record of ten cases treated under the immediate supervision of Mr Spahlinger himself between November, 1913, and August, 1914 This work took place in a London teaching hospital under conditions ideal for research It was under the supervision and with the cooperation of a very learned and wise physician whose opinion on such a matter would carry almost universal conviction During this period the late Dr Arthur Latham gave these selected cases as a test for Mr Spahlinger The treatment was carried out personally by Dr J W Linnell, with Mr. Spahlinger actually at his elbow Dr Linnell was at that time working with Dr Latham as Gibbons Research Student The usual precautions were taken to explain the experimental nature of the treatment to the patients concerned (and to the parents of the younger ones) The choice of having the treatment or not was left to the patient's own inclination

The records of these cases are here set forth as obtained from the medical notes of St George's Hospital There were about an equal number of cases treated at the same time, under similar conditions, in nursing homes Owing to the untimely and deeply regretted death of Dr Latham all records of these have been lost in the destruction of his private notes Of these ten, I have succeeded in tracing the after-history of eight Of the two untraced, I have hardly sufficient information to identify them with certainty, even supposing I could find their names in the Registrar-General's records at Somerset House

These cases were selected by Dr Latham with the utmost care and skill They were all (with one possible exception) of rather advanced chronic type not immediately and absolutely hopeless So that although few in number, they are the sort of cases in which an arrest of the disease with a return to reasonable health and life on the part of several of them would have indicated the presence of a curative agent in Mr Spahlinger's preparation of such a nature as we have at present no knowledge

Many of them had had previous courses of "aurocyanide," with negative results Dr Latham was testing this forerunner of sanocrysin at that time Two of the cases were especially chosen to test the effect on lupus and spinal caries

The Ten Cases Related

In tracing the after-histories, I am deeply indebted to Miss Hamilton, lady almoner of St George's Hospital, for her diligent search The extent of infiltration in the lungs was judged in all cases both by physical and radiographic methods Here are the cases in detail —

CASE 1 —I H, female, aged 37, admitted Nov 11th, 1913 Cough for many years A recent hæmoptysis of

2 pints No family history of phthisis An old arthritis of left ankle and knee (? due to the intracellular diplococcus) An infiltration of all left lung and right apex T B + + in sputum Only slightly febrile From November to January a course of aurocyanide injections without much improvement, but some gain in weight February to May, 26 injections of Mr Spahlinger's preparation, each giving brisk febrile reactions Signs in lungs drier T B in sputum, three found by antiformin method Weight maintained Discharged June 9th, 1914

Untraced Not known at any original addresses, or address of brother The M O H 's of Wandsworth and Westminster, in which districts she is known to have lived, have no trace except her original notification

CASE 2—A H, female, aged 29, admitted Nov 20th, 1913 Tuberculous hip-disease as a child, now healed Always had a cough Lupus on face for years Had been treated for some time with tuberculin injections and Finsen light Both father and mother died of tuberculosis Two brothers and one sister died of chest trouble Hip appears healed Moderate patch of lupus on face An occasional asthmatic attack in hospital—slight Signs in lungs indefinite contracted and rather opaque apices Sputum examined 14 times T B + once and two bacilli found on one other occasion Afebrile November to December, 1913, had 18 injections of aurocyanide Lost 5 lb. in weight February to August, 1914, had 29 injections of Mr Spahlinger's remedy Brisk short reactions Regained 5 lb. of weight Discharged August 18th, 1914

The lady almoner of Guy's Hospital reports she saw this lady alive in May, 1926 She had married seven years previously, and was seeking advice for a suspected pregnancy Her face was very much disfigured with lupus, for which she had had no treatment for years

CASE 3—M H, female, aged 37, nurse, admitted Dec 18th, 1913 A cough for four years Tuberculosis diagnosed 18 months ago Has had courses of tuberculin and sanatorium treatment Has lost 2½ st in all Voice rather husky A general infiltration of both lungs with one fair-sized and several small cavities at the left apex. Early tuberculosis of the larynx Sputum T.B + + Moderately febrile From January to March, 12 injections of aurocyanide Lost 4 lb Physical signs stationary April to July, 17 injections of Mr Spahlinger's preparation Physical signs unaltered Sputum less in amount, and T B —, rather fewer Lost five more pounds in weight. Discharged July 23rd, 1914

The tuberculosis officer of Berkshire reports that she died in 1915

CASE 4—M C, male, aged 27, traveller, admitted Nov 15th, 1912 Cough for one year, wasting, &c Two maternal uncles died of phthisis Signs of infiltration in right lower lobe T B + in sputum Was discharged to sanatorium after one month in hospital No record of time in sanatorium But cough and pain in chest returned shortly after as bad as ever, and was readmitted to St George's on Jan 26th, 1914

Well nourished T B + + in sputum Consolidation and cavitation in upper two-thirds of right lung. Some slight general infiltration of all left lung A low intermittent pyrexia lasting a few days at a time Often goes a week at a time with normal temperature February to May, 24 injections of Mr Spahlinger's preparation Very marked reactions with rigors and vomiting Lungs drier T.B + + in sputum Amount of sputum diminished Discharged June 4th, 1914

On June 30th 1914, was readmitted for a second course, having had two injections as an out-patient Three further injections given as in-patient Weight stationary, sputum scanty, but T.B still + + Discharged July 20th 1914

A letter from the patient's mother dated June 5th, 1926 says " after leaving St George's (he) spent the winter at Brompton Hospital, and from there went on to Frimley, where he gained much benefit so that in the autumn of 1915 he entered into business . He got on very well He got married in March 1917 (And later on that year) he quite broke down and went to Margate for a change He passed away in September 1917 "

His death is confirmed by the M O H for the Borough of Stoke Newington

CASE 5—T T, male, aged 50 clerk, admitted March 7th, 1914 He had been treated for three months outside hospital immediately before admission by Mr Spahlinger Cough and "asthma" for five years Lost a good deal of weight in the last two years Voice hoarse for seven weeks One brother died of phthisis Considerable infiltration of both lungs T B + in sputum Wassermann negative Sputum 2 oz per day Very marked tuberculosis of the larynx Temperature irregular but never above 99° F Was discharged March 16th, 1914, for further treatment by Mr Spahlinger outside the hospital

The M O H for the Borough of Lewisham reports that he died in a nursing home in London in 1914

(*Note*—This case was one of the private ones who came into hospital by chance He had at least 21 injections of Mr Spahlinger's preparation, and probably a good many more)

CASE 6—B M, female, aged 22, typist, admitted March 12th, 1914 She was an in-patient of the hospital in November, 1913, for 11 weeks Signs then showed general consolidation of the right lung with cavitation at apex, and infiltration of the upper half of the left lobe T B + in sputum During this admission she had 11 injections of aurocyanide with no improvement and slow loss of weight

On admission this time had lost another ¾ lb since discharge Her temperature was fairly level Pulse 88–100. Signs as before March to May 17 injections of Mr Spahlinger's preparations Some brisk reactions to intravenous injections Amount of sputum less at first, later increased Physical signs remained the same and T.B — in sputum, as before Lost 2 lb in weight Temperature at end of course tending to be more constantly febrile Discharged May 3rd, 1914

On June 5th, 1914, was readmitted Lost 1 lb since discharge No appreciable change in lungs Sputum less in amount, but T B. now + +. Had six further injections, with reactions as before Had lost a further 3½ lb on discharge Otherwise the same Discharged July 2nd, 1914

She lived at home for some months From March, 1915, onwards she attended the tuberculosis department at St George's at intervals She was admitted to the Brompton Hospital in May 1915 Thence she was sent to the Royal National Hospital, Ventnor A progress report on discharge from this institution on Nov 9th, 1915, shows her condition to have altered little T B still + in sputum and fairly afebrile Through 1916 she appears to have lived at home, doing little and changing little A report in January, 1917, says she was "working" with a temperature of 99° F at 2 P M and pulse of 102 In April the same year a further report says extensive disease both lungs, febrile, œdema of legs, and hæmoptyses. She died April 10th, 1917.

CASE 7—J A., male, aged 22, admitted April 7th, 1914. Had just returned from Malaya, having noticed lassitude, loss of weight, cough and sputum for six months Pale and thin Infiltration upper two-thirds of both lungs, with small cavities at both apices The infiltration is scattered and not very heavy T.B + in sputum Temperature mildly febrile, only occasionally up to 100° at night. April to July, 17 injections of Mr. Spahlinger's preparations. Smart reactions, especially with "serum" Sputum decreased, though T B still + Weight as before Signs the same Discharged July 27th, 1914

A report from the M O H of the counties of Moray and Nairn, dated June 17th, 1926, says: " . . about the outbreak of war in 1914 he was exempted from service, and was engaged for a considerable period as salesman . in Elgin I saw him frequently, when the disease seemed to be fairly quiescent He left this district for the South . . . I lost sight of him till 1921, when he returned home to his parents about October in that year and died about a fortnight later on Oct. 16th, 1921 "

CASE 8—G L, female, aged 31, admitted April 11th, 1914 Four years ago first had pain in her back, which shot down right thigh Eighteen months after that spinal deformity was first noticed but patient continued to work for six months after that Was then under medical care on back for ten months Then up and about for six months From then onwards—i e, last six months—has been on back under further treatment in a sanatorium Had a course of Mr Spahlinger's preparations outside the hospital in January No cough or sputum or other lung symptoms. Angular deformity of several vertebræ in the lower dorsal spine Much rigidity of back, and pain on jarring Lungs have a poor note at left base, otherwise not abnormal. Slight fever at times April to July Treated with 21 injections of Mr Spahlinger's "serum" Very marked reactions Temperature steady between reactions Was walking on discharge with a poroplastic jacket Discharged July 31st, 1914

This patient has not been traced Visits to the home of the parents and relations in West Sussex have revealed no trace of the family, nor any neighbour who knows anything about them

CASE 9—F B, male aged 18, admitted May 4th, 1914. Fourteen months ago developed pleurisy at the left base. Cough, night sweats, &c, since Pulmonary tuberculosis diagnosed six months ago, has improved since Well nourished T.B + in sputum Infiltration of all right lung and left lower lobe Temperature up and irregular. Only three injections of Mr Spahlinger's cure given Some reactions Patient was removed from hospital by his parents before course completed No alteration of physical signs on discharge Discharged June 13th, 1914

The tuberculosis officer of Kent reports that he died on March 1st, 1916

CASE 10 —M O, female, aged 22, admitted May 11th, 1914 Onset of disease 18 months ago with cough, sputum, night sweats, wasting, &c One year ago was sent to sanatorium for a period of six months Signs of infiltration in the right lung and left upper lobe T B + + in sputum Irregular swinging temperature, average 101 5° F at night May to June, six injections of Spahlinger's preparations Lost weight all the time Signs spread to rest of left lung T B + + in sputum Discharged July 8th, 1914

The tuberculosis officer for the Borough of Fulham reports that she died in Fulham Infirmary in the same year—1914

Summary of Results

The following table summarises these results briefly —

Case	Sex	Age	Site of disease	No of inject	Immediate result	Further treatment	Final result
1	♀	37	Lungs	26	Sl imp	N tr	N tr
2	♀	29	Lupus	29	No change	? Finsen light none for yrs	Alive, married 1926
3	♀	37	Lungs	17	Sl worse	No record.	Died 1915
4	♂	27	,,	29	Very sl better	Brompton Frimley	,, 1917
5	♂	50	,,	24*	No change	—	,, 1914
6	♀	22	,,	23	Sl worse	Brompton Ventnor	,, 1917
7	♂	22	,,	17	? Sl imp	None	Worked, died 1921
8	♀	31	Spine	21	Imp	N tr	N tr
9	♂	18	Lungs	3	No change	No record.	Died 1916
10	♀	22	,,	6	Rapidly worse	Fulham Infirm	,, 1914

* Two courses (24 at least)
Sl. imp =Slightly improved N tr =Not traced

Conclusion

They may be shortly reviewed thus The case of lupus is still alive. Lung lesions are notoriously benign, as a rule, in individuals with lupus The spinal case is untraced, but may possibly be alive—such cases do live for years One of the lung cases is untraced Of the remaining seven all are dead It is difficult to say that any of them showed any improvement after their treatment, certainly none showed marked improvement Such slight indications as there are of improvement are not more than one would expect from tuberculous patients after they had been in bed for periods of time such as these were The two who lived to 1917 both had much further orthodox treatment at the Brompton Hospital, Frimley, and Ventnor The one who died in 1921 is one of those cases to be found in any tuberculous series who lives longer than one would expect Also he was the patient in this series with the least disease and the shortest history

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SWINDON HOSPITAL SERVICE —For a long time past there have been serious difficulties connected with hospital accommodation at Swindon, and the town council recently sought a way out by proposing to purchase an expensive site for the creation of a municipal hospital The Ministry of Health has, however, refused to sanction the purchase on the ground that the case for a municipal hospital has not been made out

BIRMINGHAM HOSPITAL SATURDAY FUND —This year's collections amounted to the record sum of £64,500, and after providing for the Fund's own convalescent homes and special expenditure, £26,000 is being distributed to hospitals and institutions In addition £5250 has been spent on hospital tickets, £3500 has been given as a special grant to the guardians, and £5250 contributed to the Droitwich Hospital for the Treatment of Rheumatism

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Clinical and Laboratory Notes.

A CASE ILLUSTRATING THE EFFECTS OF PROLONGED APPLICATION OF COLD TO THE EYE

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THE following case seems to be worthy of record —

A myopic woman, aged 52, who was suffering from traumatic subconjunctival ecchymosis in the left eye, was advised by her doctor to keep an ice-bag constantly over her eye, in order that absorption of the blood might be hastened Unfortunately she kept up the treatment for nearly a fortnight, the subconjunctival hæmorrhage mostly cleared up within the first few days, but after about a week the patient developed severe neuralgic pain on the left side, and, after a fortnight, acute congestive glaucoma in the left eye, with ptosis

There was marked increase of intraocular tension, severe pain and tenderness haziness of cornea (vision being reduced to nearly 3/60), and contracted fields of vision of the glaucomatose type She also suffered from violent neuralgic pain in the left forehead and temple, the skin over the course of the left supraorbital nerve was very tender, and the patient retracted her head at once whenever the supraorbital region was touched The ice bag lying on her left forehead was responsible for this complaint also

When I saw the patient in this condition eserine drops were at once instilled, and she was put on bromides, salicylate, hyoscyamus, and gelsemium mixture, with fomentations to the eye, the left temple was blistered. To relieve her supraorbital neuralgia, soothing applications were given, but as the glaucomatous pain in the eye persisted with high tension, I trephined her, with the result that she had immediate relief from pain and the haziness of the cornea cleared up, giving her a greatly improved vision She recovered, but the ptosis persisted for nearly a week more

The trauma which caused the ecchymosis cannot be regarded as responsible for the glaucoma, which developed a fortnight afterwards The points of interest in the case are (1) that acute congestive glaucoma occurred in an eye with as much as eight diopters of myopia, which is unusual, (2) that the attack of congestive glaucoma was brought on by the prolonged application of cold on the eye, and (3) that trephining for acute glaucoma showed itself just as satisfactory an operation as iridectomy

It may be mentioned that subconjunctival ecchymosis coming on several days after an injury indicates fracture of the base (anterior fossa) of the skull If, however, ecchymosis comes on immediately after the injury and is not associated with any other intraocular lesion, it is not in any way serious, and always takes its time to clear up Prolonged application of ice on the eye is unnecessary and injurious

BLACKWATER FEVER IN SCOTLAND

BY JAMES S ANDERSON, M D ABERD, D P H,
SENIOR RESIDENT MEDICAL OFFICER, CITY HOSPITAL, ABERDEEN

IN view of the rarity of blackwater fever in this country, the following case appears to be worthy of record

The patient, D M, aged 28, was a native of the Outer Hebrides and had previously enjoyed average good health In 1916 he served in the army in Gallipoli and contracted malaria No record could be obtained of the type of infection, but the disease does not appear to have been severe After a brief sojourn in Scotland he obtained an appointment in Nigeria in 1918, his employment entailing much travelling about the country He left Nigeria for this country on Nov 4th, 1924, apparently in good health From 1916 to 1924 he had kept a record of his malarial attacks, and he reckoned the number as 25, none being of special severity He was certain that he had never shown any manifestations of blackwater fever during that period

Having spent the winter months in Lewis, he started out on his return to the West Coast of Africa early in March

1925 Arriving in Aberdeen during a snowstorm, he lodged in a hotel where the present illness developed suddenly on March 12th The onset was heralded by a rigor, followed by irregular fever with marked bilious symptoms On the first day the patient took 15 gr of quinine sulphate by mouth, but this does not appear to have been retained On the following day he was alarmed to find that he was passing very dark urine The symptoms becoming worse, he was admitted to hospital on March 14th

Condition on admission—Temperature 100° F, pulse-rate 88 There was some epigastric distress and vomiting of a bilious type was severe and prompt after any attempt to swallow fluids Splenomegaly was present, the organ being just palpable, while the liver appeared to be normal in size The skin and sclerotics showed a marked saffron yellow tint. On the day of admission and on the following day he passed a few ounces of urine of a mahogany colour He was constipated. All the symptoms increased in intensity until March 16th after which they gradually subsided The vomiting was particularly severe, necessitating the use of a small amount of opium. The only fluid tolerated for any time by mouth was iced champagne, so that frequent rectal and intravenous administration of normal saline was a necessity. No urine was voided after March 15th, and constipation defied all attempts to procure a movement of the bowel A feeling of intense weakness developed, and as a result of the suppression of urine slight convulsions appeared on March 22nd, rapidly terminating in coma and death on the same day

Blood films failed to reveal the presence of malarial parasites, and the red corpuscles showed no abnormality The white cell count on the day after admission was as follows. polymorphonuclear cells 74 per cent, large mononuclear cells 13 per cent, small lymphocytes 11 per cent, eosinophil cells 1 per cent., and transitional cells 1 per cent. The fæces showed no pathological organisms and no unusual protozoa. The urine contained a large amount of albumin and a large deposit of brownish granular material Blood corpuscles were entirely absent and spectroscopic examination gave the characteristic bands of oxyhæmoglobin.

A noteworthy point in connexion with this case is that the disease developed more than four months after the patient had left an area in which it was endemic.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF ELECTRO-THERAPEUTICS AND SURGERY.

SURGICAL ASPECTS OF DIATHERMY

A MEETING of these Sections was held on Dec 17th, when there was a discussion on the surgical aspects of diathermy. Dr G BATTEN (Electro-Therapeutics) took the chair.

Dr. E P CUMBERBATCH opened the discussion, his main purpose being to deal with the technical aspects of surgical diathermy and the methods of performing the operation The temperature of tissues, he said, could be raised by passing through them a current of considerable intensity. By making this current alternate with high frequency the undesirable stimulation of muscles and nerves and the production of electrolytic changes in the tissues were avoided, and by confining the current within a narrow path the tissues in that path were deprived of their vitality. Hence such a process was available for surgery

Diathermic Coagulation.

To produce coagulation of abnormal tissue said Dr Cumberbatch, the current was increased sufficiently to cause a high temperature, an electrode of small area being placed on the tissue to be destroyed, and the circuit completed by a large area electrode placed on another part of the body Eventually, under the influence of the gradually increasing current the tissues began to boil, and later sparks passed from the edge of the disc, over the coagulated (now dried) tissue to the uncoagulated part beyond The current should not be continued after the appearance of the sparks, as the coagulation would only very slowly proceed to a greater depth The difficulty of application by means of the disc electrode was that the operator could not see the extent, in depth, of the tissue coagulation Experiments carried out on excised tissue showed that the depth of the coagulation equalled the diameter of the disc In living tissues the circulation removed some of the heat generated by the current and prevented the coagulation from spreading. but destruction took place beyond the limit of coagulation—a point to be remembered when important structures were in close proximity The depth of the coagulation was much more under control when a single needle was used instead of a disc Coagulation commenced at the needle point, then proceeded up the shaft to the surface, and the depth of coagulation was determined by the depth of insertion of the needle, and the coagulated mass took the form of a narrow cylinder. By putting the needle into a number of sites closely adjacent to each other destruction of a wider area could be brought about With multiple needle electrodes there could not be the same certainty as to the depth of the destruction brought about.

Circumvallation and Operations with the Blade Electrode.

Circumvallation, continued Dr. Cumberbatch, was the operation by which a malignant growth was surrounded by a rampart of coagulated tissue The single needle electrode was put obliquely into the healthy tissue adjoining the growth to a point below the growth and the tissue was coagulated around it. By repeating this in adjacent parts in succession, the needle being each time directed to the same point below the growth the coagulated rampart would be cone-shaped and the growth would be imprisoned within it. Diathermy of the growth would not now be likely to cause metastasis This method was being widely practised in America

In the old method of using the blade electrode it was inserted into the healthy tissue around the growth and was moved forward slowly enough for coagulation to keep in advance of the cutting edge The blade must cut only coagulated tissue which was difficult to ensure. and if other tissue or unsealed vessels were cut bleeding occurred, with its disadvantages and risks By the new method a strong current was produced before the blade was brought into contact with the tissue Contact was then made and the blade drawn into and across the tissue with the same speed as the scalpel was used in a cutting operation. The tissue divided as the blade was drawn across it, and a white line of coagulation marked the track of the electrode. The facility of division of the depth of coagulation of the divided surfaces varied with the different diathermy machines; those giving a maximum current at a relatively high voltage were less suitable than others. With a low voltage tissue was divided easily. but the amount of coagulation was slight.

The best way to deal with accessible malignant tissue, said Dr. Cumberbatch, was to do a preliminary circumvallation and then remove the growth by the blade electrode When there was widespread disease so that circumvallation could not be done, it was best to accomplish as much coagulation as possible by means of the disc electrode and allow the tissue so isolated to separate spontaneously. After diathermy healing was rapid, even if complete destruction had not been brought about, and any recurrence could be dealt with in a similar way.

Fulguration

In the operation of fulguration. he continued. the tissues were destroyed by the heat derived from sparks The surface might be carbonised by the sparks, but the destruction by this method was not very deep. It was suitable for destroying papillomata of skin and mucous membrane and in America hæmorrhoids and enlarged tonsils were treated in this way. Whilst in New York he had seen Dr. W. Bierman operate for hæmorrhoids by this method.

He first injected a dilute solution of novocaine into the sphincter ani, the sphincter was then dilated, an earth connexion was made. and sparks from an Oudin resonator played on to the hæmorrhoids, which became thus reduced to dry masses. The only pain felt was that due to insertion of the syringe needle and the patient could go on with his ordinary work in two or three days. For enlarged tonsils surface anæsthesia was produced and the sparks were applied by special directors to prevent other parts receiving them. This was done again at intervals of two or three weeks until complete removal had been effected.

Electro-Desiccation and Wyeth's Cutting Current

By the method of electro-desiccation devised by W L Clark, of Philadelphia, said Dr Cumberbatch, a current of low amperage was passed through the tissue by a needle electrode, thus dehydrating it. It could be accurately localised and was under the complete control of the operator. Even corneal ulcers and papillomata of the vocal cords could be treated by it; the cosmetic results were very good and the inflammatory reaction slight. The latest advance in the use of high-frequency currents in surgery had been made by a New York surgeon, G A Wyeth. He used the current for cutting and for coagulating the cut surfaces, the coagulation being limited to a depth of 0.1 mm. He employed a current with a sustained oscillation, the alternation being at the rate of about five million per second. Healing by first intention would take place after the tissue had been divided in the way described. Post-operative shock was said not to occur.

Discussion

Mr F J. Steward said that his experience with diathermy was confined to new growths on the surface of the body or in the mouth or pharynx. Its superiority over the cutting operation was evident if certain conditions of technique and choice of cases were satisfied. The final results from the two methods were identical. Diathermy was almost a bloodless operation and its use was quicker and more precise. The hæmorrhage and post-operative shock after the use of the knife frequently paved the way for sepsis, with, perhaps, secondary hæmorrhage or pneumonia. After diathermy recovery was rapid and complications were uncommon, there was also a remarkable freedom from pain after the operation. This freedom from pain was an inducement to choose the method in carrying out palliative treatment in cases too advanced to give hope of cure. To ensure destruction of the growth together with a considerable amount of surrounding tissue the growth must be thoroughly exposed to vision, this exposure could generally be ensured by retractors, gags, and sutures, though sometimes a preliminary operation might be needed. He had not chosen diathermy when the growth involved bone, for when the sequestrum had separated after diathermy recurrence was usual in the bed which had been occupied by the sequestrum.

Mr. Gwynne Williams said that he agreed almost completely with what Mr Steward had said. He spoke on the use of the method for carcinoma of the tongue and floor of the mouth, for which he had not used the knife for six years. He limited the method to cases which he considered operable. His difficulty had been to keep the diathermy knife going at the correct pace and to keep the current reasonably constant. Sometimes the lingual artery had to be tied and it was always the safer plan to tie as reactionary hæmorrhage was then much less likely. It was just as important for the mouth to be kept clean for diathermy as for an operation with the knife. He agreed that the scar left after diathermy was much softer than that which followed use of the knife. The likelihood of recurrence was the same. For operations on the tongue his practice was to remove the glands in the neck very freely at a separate operation.

Mr Douglas Harmer said that surgical diathermy was first done in England at St Bartholomew's Hospital in 1910 by Prof Nagelschmidt, who was introduced by the late Dr. Lewis Jones. It was for removal of a large pedunculated malignant growth of the nasopharynx. The result was good and there was no bleeding. Sixteen years experience with this method had convinced Mr Harmer that it was better than simple excision with the knife. Indeed, he thought malignant ulcers should not be removed by cutting when diathermy was available. Only two of his cases had succumbed from bleeding. When bone was involved it should be freely destroyed, bone involvement was no contra-indication to the treatment. In many instances radium and X rays were needed either before or after diathermy. Probably by using diathermy in preference to simple excision for malignant ulcers in the upper air passages the number of cures obtained had been at least doubled.

Mr H H Rayner gave an account of his experiences with diathermy in cancer of the skin and of the breast. Not only was the method preferable to use of the knife, but, he thought, the risk of local recurrence was less. In advanced epithelioma of the skin diathermy gave better results than the knife, the surgery was minimal and the ultimate condition more satisfactory. Very advanced cancer of the breast could also be treated by diathermy with considerable benefit.

Dr. Thomas Marlin spoke of the path pursued by the diathermy current and described the results of his experiments on egg, turnip, and beef.

Mr Gordon Taylor said that as a result of his experience with over a hundred cases of operable carcinoma of the mouth treated by diathermy—of which 84 were carcinoma of the tongue—he was convinced that the results in carcinoma of the tongue treated by diathermy were better than after the older method by scissors or the knife. The only disadvantage appeared to be the risk these patients seemed to run of getting broncho-pneumonia after diathermy. Of those who survived the short period after the operation, 50 per cent had a good chance of remaining free for six years. (He had first used the method six years ago.) Secondary hæmorrhage after the operation he regarded as a bugbear. In 84 cases of carcinoma of the tongue he had only had two cases of such hæmorrhage, one was easily controlled, in the other the lingual artery had to be secured. And in inoperable malignant growths of the mouth diathermy was most useful. He had also used diathermy for malignant growths of the bladder.

Mr John Everidge said the diathermic cautery possessed enormous advantages for the treatment of papilloma of the bladder, and the results it gave were quite good. Recurrences were frequent, which was not suprising, for only papillomata which could be seen were destroyed, and the tendency of the bladder to form these growths was unaltered. Sepsis in the bladder did not tend to occur after the method. Secondly, hæmorrhage took place with considerable frequency and there was often a fair amount of bleeding at the end of the first week, but he had not yet had a case so treated which caused him any great anxiety. In the treatment of carcinoma of the bladder by the diathermic cautery, however, the story at his hospital was a different one, for most of the cases seemed to have been the worse for it. Indeed, in cases of doubtful diagnosis as between carcinoma and papilloma, the cautery usually made the nature of the lesion clear, for carcinoma was not benefited. Forage for prostatic enlargement had been found very valuable where there was a projection into the prostatic urethra causing urinary obstruction. It was not so good for massive enlargements. The absence of scar tissue after operation was of peculiar importance in the neck of the bladder and this constituted another recommendation for diathermy.

Mr Philip Turner spoke of his use of fulguration for malignant growths with Dr Iredale in 1909 after he had visited the Surgical Congress in Paris in 1908. Later they had found diathermy superior to fulguration. Rodent ulcer was the type of lesion which yielded the best results. In addition to the diseases mentioned in the discussion diathermy had been valuable for cases of breaking down tuberculous glands in the neck with sinuses, for it brought about firm healing and he was able to support the statements as to the absence of pain and shock and the formation of supple scars after diathermy In his 18 years' experience with it he had had only three burns, and four cases of secondary hæmorrhage He always took care that no ether was in the theatre where diathermy was performed For malignant growths in the mouth and pharyngeal region the method was particularly valuable, as it enabled the mutilating operations—which were so frequently disappointing—to be dispensed with He had employed colloidal copper for the purpose of guiding the diathermy current accurately along the lymphatic tract, and had found it distinctly useful when the neck glands were involved

Mr C G Teall referred to the use of diathermy for treating growths in the œsophagus, a region where it had long been considered dangerous to use it In association with Mr Musgrave Woodman he had used a specially designed electrode constructed of metal only where it was intended to act on the growth, the remainder being of vulcanite , it answered very well for palliative treatment More recently they had used a modification of the Jackson bougie

Mr C P Lankester spoke of his treatment of hæmorrhoids by diathermy and the almost entire absence of pain.

Reply

Dr Cumberbatch, in reply, said that after carrying out circumvallation, pieces of tissue could be excised for microscopical examination without setting up metastasis such as many considered likely when that was done in the ordinary way In Baltimore both Howard Kelly and Joseph Bloodgood had now discarded the knife for accessible malignant growths Experiments in diathermy on vegetables were not of much use for deducing principles in regard to a patient's living tissues It had not been the experience at St Bartholomew's Hospital that broncho-pneumonia often developed afterwards He thought diathermy ought to receive a thorough trial in the treatment of carcinoma of the cervix Dr Henry, of Omaha, preferred diathermic coagulation in early cases of carcinoma of the cervix to hysterectomy By using the proper technique burns could be avoided, whilst ligation of arteries prevented secondary hæmorrhage

Mr Steward, in a brief reply, said he was glad his pessimism about the use of diathermy in lesions of bone was apparently not well founded The general situation, good as it already was, could be expected to improve yet further with careful observation and better technique

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ROYAL ACADEMY OF MEDICINE IN IRELAND

SECTION OF MEDICINE

A meeting of this Section was held on Dec 3rd, Dr G E Nesbitt, the President, in the chair

Dr R H Micks and Dr W R Fearon described a case of

Hæmatoporphyrinuria

They stated that the urine was a deep port-wine colour and showed no absorption bands By adding 10 per cent barium chloride solution, drop by drop, to boiling urine the pigment was carried down with the precipitate of barium salts, and removed from the precipitate by extraction with glacial acetic acid, or with a 5 per cent solution of sulphuric acid in 90 per cent alcohol

Dr R R Leeper said that the patient from whom the urine was obtained was a man who had been under his care for some years He suffered from dementia præcox, and was cyanosed in the extremities One night he suffered from retention of urine , Dr Leeper drew off the urine, and found hæmatoporphyrinuria The patient had had no drug treatment

Dr L Abrahamson said that he assumed the hæmatoporphyrinism in this case to be of the acquired variety, as the cause was not apparent He referred to four cases he had reported in the *Quarterly Journal of Medicine*, two of which were of the acquired type, and two congenital

Dr A R Parsons referred to a case of hæmatoporphyrinuria described by him in 1906

The patient, a woman of 23, complained of very severe abdominal pain, constipation, and sleeplessness, for which there was no apparent cause The urine was generally normal when passed, but later changed colour and became the colour of port wine The patient had had no drug treatment whatsoever She recovered and left hospital, but about a month later she returned much worse She developed symptoms of peripheral neuritis, and died some time later Alkalis were given freely, but without any benefit

Dr W M Crofton and Dr Preston Ball joined in the discussion

Dr E T Freeman described a case of

Chronic Gastric Ulcer

The patient, aged 45, was a professional man who for seven years had had abdominal pain, which was worse in the summer and early autumn, when he was in the habit of eating much fruit In September, 1925, the pain had been more severe than usual, and he complained of pain over the ensiform cartilage and inability to walk, stand, or sit up without discomfort There was slight tenderness in the mid-line, but the gall-bladder was neither tender nor palpable The patient looked slightly jaundiced, and had bradycardia (pulse-rate 58) The teeth were excellent, and there was no obvious infection of tonsils A fractional test-meal showed hyperchlorhydria and some leucocytes and blood-cells A radiogram showed an ulcer on the lesser curvature, with a large crater towards the pancreas, slight pylorospasm, and duodenal irregularity The urinary diastase was 8 units, and the van den Bergh test gave a very faint indirect reaction not more than normal

The ulcer, said Dr Freeman, was of the type for which surgical intervention was usually suggested, and for which gastro-enterostomy would be useless, as the pylorus emptied normally The patient was put on a rigid diet—milk and cream every hour, with alkaline powder between, and ℞ xx of tincture of belladonna ex aqua each night Eggs, ground rice, bread-and-butter, and vegetable purées were gradually added At the end of three weeks he was allowed fish, and was then taking three small meals daily, with milk and cream and alkalis between He had now been on an almost normal diet for some months, with alkaline powder and cream mixture He was not allowed to eat a greater total quantity than 12 oz at any meal Radiograms taken during October and November showed no ulcer, and the patient had had no symptoms since the second day of treatment Great credit was, however, due to the patient for his complete cooperation The aphorism attributed to Sir J K Fowler that no fool was ever cured of pulmonary tuberculosis might be applied to gastric ulcer

Dr Micks referred to a paper by Einhorn and Crohn, of New York, describing 101 cases of gastric ulcer treated medically during the last four years They stated that after a year about 80 per cent appeared to be cured, but that after four years only about 50 per cent of the cases treated had not relapsed He thought that in the average working-class patient this was the most that could be hoped for

Dr J H Pollock read a paper entitled

Observations upon Scarlatina

He discussed the frequency of hæmolytic streptococcal infection, as shown by blood cultures and metastatic abscess formation He believed that a streptococcal septicæmia was very frequent

The President said that he had used antitoxin to some extent at the Richmond Hospital, but it was expensive, and he could not say that it had had any remarkable effect in his cases—nothing at all comparable to the effect of diphtheria antitoxin

Dr Crofton said that English workers had for years maintained that a streptococcus was the cause of scarlatina

Dr W E Hutchinson said that he had been at Cork Street Hospital for a year while cases of scarlatina were being treated on the ordinary lines After that time the use of serum had come in, and he had no doubt from a comparison of the results that serum should be used. He mentioned one case which on admission had been absolutely comatose 10 c cm of serum were given that night, and the same amount the next morning recovery was uninterrupted He could not be sure whether the giving of serum lessened the complications that arose in cases of scarlatina

Dr R J **Rowlette** asked if all the cases treated were cases of true scarlatina, or if they were cases of sepsis simulating scarlatina It was important to make a definition between cases of true scarlatina and cases of acute sepsis with a rash He asked if the use of vaccines made from the organisms which were separated from the blood had been tried He thought that probably an autogenous vaccine would be more helpful than serum, and that vaccine and serum together would be more helpful than either serum or vaccine used alone

Dr **Pollock**, in replying said that they had found at Cork Street Hospital that the giving of serum did not make any difference regarding the length of time of convalescence He thought it possible that, as time went on, scarlatina would be regarded much less as a separate entity than it had been considered recently he also thought that the nomenclature of many of the fevers would be changed in the future

Dr W G **Harvey** showed a case of lichen planus acuminatus and lichen annularis

Dr **Abrahamson** read a paper on the diagnosis of coronary thrombosis and a discussion followed

EDINBURGH OBSTETRICAL SOCIETY

A meeting of this Society was held on Dec 8th, Prof R W **Johnstone**, the President, being in the chair

Prof J A **Kynoch** described two cases of

Rupture of Uterus following Cæsarean Section

The two cases, he said, had been met with within two months

Case 1 —The patient had had two Cæsarean sections, and was again nearly at full term The clinical features were severe collapse, preceded by several hours of abdominal pain and sickness, during which time the patient had walked several miles in search of work Operation was performed immediately on admission, and an aperture about the size of a five-shilling piece was found at the lower end of the scar, which was thin and translucent for its whole length, the peritoneal coat being alone intact There was a considerable quantity of free blood in the peritoneal cavity Supravaginal hysterectomy was performed, and the patient left hospital three weeks after admission

Case 2 —The patient also was eight months pregnant, and had had one previous Cæsarean section. She was suddenly doubled up with pain, and had a fast pulse and hurried respirations, the rupture being complicated by an acute lobar pneumonia Rupture was diagnosed and the abdomen opened under local anæsthesia The rupture was found to be five inches in length and the membranes bulged through After removal of a dead child, the wound was sutured and the patient sterilised After a somewhat stormy convalescence, owing to the chest condition, the patient eventually did well, and was discharged four weeks after operation

Prof Kynoch went into the statistics of rupture after a previous Cæsarean section, and contrasted the results of the classical and lower uterine segment incisions The most frequent causes of rupture, he said, seemed to be infection with defective coaptation of the wound edges, the use of catgut as a suture material, and attachment of the placenta to the line of the incision Both of his cases had had a febrile convalescence at the previous Cæsarean section, and in each case catgut had been employed Prof Kynoch favoured silk as a suture material for Cæsarean sections, and thought catgut very unsuitable

Dr C G **Lambie** read a paper on

Diabetes and Pregnancy,

which were rarely associated, he said, because diabetes caused atrophic and sclerotic changes in the ovaries and uterus, with resulting sterility, disorders of menstruation, and sexual frigidity These functional disturbances could often be rectified by the use of insulin, except where organic changes were advanced, as in the more chronic cases.

Referring first to the effect of pregnancy upon diabetes Dr Lambie said that pregnancy exacerbated pre-existing diabetes, and might be the starting-point of the malady in predisposed individuals The factors leading to deterioration of sugar tolerance were (1) absorption of products of protein hydrolysis from the placenta during the first three to four months—a condition analogous to infection, (2) the emotional excitability of the earlier months, causing glycogenolysis in the liver, (3) over-eating, after the period of morning sickness was over, (4) the necessity for giving a good deal of carbohydrate to prevent acetonuria. (5) hyperactivity of the thyroid and pituitary glands during the later months. Improvement in tolerance was commonly observed towards the end of pregnancy, while simultaneously an increasingly large amount of carbohydrate was utilised by the fœtus The islet tissue of the fœtus underwent marked hyperplasia and hypertrophy to meet the increased functional demands There was no good experimental evidence that insulin passed from the fœtus to the mother During labour the blood-sugar rose slightly, but after delivery there was a sharp rise, the hyperglycæmia lasting for 24 to 48 hours Thereafter an improvement in tolerance occurred and might be accompanied by hypoglycæmia in cases treated with insulin This was due either to a return of pancreatic function, or to excretion of carbohydrate as lactose on the milk, or to replenishment of the glycogen reserves after their depletion during labour, in which case it might be quite short-lived and was followed by another fall in tolerance, after which there might be gradual improvement. Acetonuria during labour was due to depletion of the glycogen reserves in order to provide carbohydrate for the supply of energy for muscular contraction or to anæsthetics, starvation, hæmorrhage, or sepsis After delivery, the tendency to acetonuria disappeared, more fat could be taken, and the necessary calories might be given with a smaller intake of glucose

Turning next to the effect of diabetes upon pregnancy, Dr Lambie said that both maternal and fœtal mortality were high Hyperglycæmia in the fœtus, which was secondary to maternal hyperglycæmia, resulted in hydramnios, the development of an excessively large fœtus, and hyperplasia of the islets of Langerhans in the fœtal pancreas Hydramnios might be caused by fœtal diuresis together with endosmosis, due to high osmotic pressure of the saccharine fœtal urine Hypoglycæmia, due to excessive insulin secretion by the hyperplastic islet tissue, was a possible cause of death after birth These conditions, with their associated obstetric complications, were avoided by the use of insulin Insulin also raised resistance to infection and diminished susceptibility to puerperal sepsis

Diabetes he continued, had to be distinguished from other forms of glycosuria occurring in pregnancy—namely, early alimentary glycosuria, renal glycosuria, lactosuria, glycosuria due to carbohydrate starvation, and late alimentary glycosuria The last might closely resemble diabetes, and was liable to similar complications Its most outstanding feature was its rapid disappearance within about 10 days of delivery It was probably of hypophyseal origin In some cases hyperthyroidism might be a cause of glycosuria Insulin had improved the prognosis, especially as regards the life of the mother Some cases now passed through pregnancy without loss of tolerance, pregnancy might go on to full term and a healthy child might be born The diet must contain a relatively high proportion of carbohydrate in order to avoid acetonuria After delivery a high-fat low-carbohydrate diet might be given, and it then became possible to reduce or abolish the dose of insulin The caloric requirements were about

35 calories per kg. per diem, and the protein minimum was approximately 1·2 g. per kg. per diem. Insulin was administered in the usual way, and did not harm the fœtus even when minor attacks of hypoglycæmia occurred.

Induction of abortion was indicated, said Dr. Lambie in conclusion, (1) where diabetes had existed prior to pregnancy and the patient was unwilling to submit to continuous supervision under suitable conditions; (2) in very emaciated, ill-nourished subjects; (3) where there was rapid loss of tolerance in spite of treatment; and (4) in cases of acidosis with uncontrollable vomiting. Where a large fœtus was expected premature labour might be induced, or Cæsarean section under nitrous oxide and oxygen anæsthesia might be performed. Labour was best conducted under hyoscine and morphine narcosis. During labour usual doses of insulin together with a very liberal allowance of easily assimilable carbohydrate, should be given to prevent acidosis.

Reviews and Notices of Books.

TREATMENT.

The Elements of Medical Treatment. By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond-street, London. Bristol: John Wright and Sons, Ltd. 1926. Pp. 163. 7s. 6d.

Principles of Medical Treatment. Sixth edition, revised and enlarged. By GEORGE CHEEVER SHATTUCK, M.D., A.M., Assistant Professor of Tropical Medicine, Harvard Medical College. Cambridge: Harvard University Press. London: Humphrey Milford, Oxford University Press. 1926. Pp. 252. 15s.

IT is admittedly difficult for the student in the wards to learn much about treatment; most of his time is occupied with case-taking and diagnosis, and if he is really interested in treatment he has to consult large volumes. Dr. Hutchison's excellent book should remove some of his difficulties, for it sets out in elementary form the basic principles of treatment and their application to the commoner types of disease. An introductory outline in 11 pages contains more wisdom than many a large text-book of therapeutics. Then follow chapters devoted to such subjects as fever, pain, insomnia, constipation, &c., and after this certain definite diseases such as nephritis, bronchitis, pneumonia, &c., receive attention. A chapter on psychotherapy has been written by Dr. T. A. Ross; sections on diabetes and the use of insulin and an account of some minor medical operations are contributed by Dr. Devereux Forrest. Throughout the book prescriptions are not only set out in full, but also each ingredient is clearly explained, and the advice given in the introduction "to use only a few drugs but to know them and their effects intimately," should be easy to follow if this book has been intelligently read. It should make a wide appeal to students, resident medical officers, and young practitioners for the advice it contains is sound, free from fads, and not overburdened with useless detail.

In its sixth edition Dr. Shattuck's book has been considerably enlarged and revised, many authors now contributing special sections. The chapters on asthma, syphilis, lead poisoning, anæmia, endocrine disturbances, pre-operative and post-operative medical treatment, and on vaccine therapy are entirely new. Dr. Shattuck is also a firm believer in the habitual use of only a few drugs; and in a masterly chapter on medication he sets out two lists, the first containing 11 "very valuable drugs," and the second some 15 groups of "useful drugs." The 50 pages which make up this chapter are as valuable as the whole Pharmacopœia. English readers should not be put off by the fact that the references are mostly to official and non-official American preparations, for this does not affect the value of the advice offered.

RHEUMATISM: ITS MEANING AND ITS MENACE.

By LEWELLYS F. BARKER, M.D., and NORMAN B. COLE, M.D. London and New York: D. Appleton and Co. 1926. Pp. 165. 5s.

IN this little volume an attempt has been made to present to the public the facts about all forms of arthritis (including gout) as they are, however imperfectly, known to the medical profession. The book supplies a good summary of the subject; the practitioner also will profit by its perusal because it will fortify him anew against the employment of pseudo-scientific theories in treatment, upon which intractable cases are always tempting him to rely. Two of the first three chapters deal with rheumatic fever and its complications laying stress, of course, upon the preventability of rheumatic carditis as a national disease. A word should here be said as to the use of the word "infectious," which American writers apparently use as synonymous with our word "infective," as applied to this disease. Chronic arthritis is subdivided into (1) chronic infectious (i.e. infective) arthritis, (2) chronic progressive polyarthritis; and (3) primary hypertrophic osteo-arthritis. These conditions are described in detail in three successive chapters. Primary hypertrophic osteo-arthritis is stated not to be "a sequel of infection in other parts of the body in the same sense as" are the other two forms. The next chapter is about treatment of all three forms in all of which the removal of any infective cause and the prevention of crippling processes are put forward as the ideal. Drugs are not considered by the authors to be efficacious in any specific way, and hot water is stated to be the cause of the favourable reports from spas. The fads of dietotherapists are to be discouraged, and a commonsense mixed diet under the supervision of the family doctor is advocated. No alleged short cuts to cure are credited by Dr. Barker and Dr. Cole, who write with a real sense of professional responsibility. A chapter on gout is followed by another pointing out the social significance of the rheumatic diseases in general; it is noted that as a result of these diseases over 60,000 work-years are lost annually in Britain. A glossary is added for the convenience of the layman. As an experiment in education of the laity this book is of special interest. It will be instructive to learn whether it goes through many editions during the next few years or suffers in popular esteem from the absence of the plausible but wholly unscientific hypotheses which are so often the mainspring of books designed for the general public. We wish it success.

AVIATION MEDICINE.

By LOUIS HOPEWELL BAUER, A.B., M.D., Major, Medical Corps United States Army; Commandant, The School of Aviation Medicine. Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1926. Pp. xvi + 241. 34s.

THIS book is divided into three main sections: I. The Selection of the Flyer; II. The Physiology of Aviation including the Classification of the Flyer; III. The Care and Maintenance of the Flyer. A supplement gives detailed instructions for certain tests and forms of examination in use by the U.S. Army and Navy Air Services and a comprehensive bibliography is included. In Section I. the general physical qualifications required in an aviation candidate are set out, special reference being made to the eye, ear, nose, and throat. Neuropsychic factors and reaction times are considered in detail. Section II. deals with the effects of altitude upon the heart, respiratory, circulatory, and nervous systems and various altitude tests which have been devised are discussed A chapter on the Effects of Wind, Cold, and Speed concludes this section Section III has chapters on Fatigue, Staleness, and Physical Fitness Protective Devices, Duties and Training of the Flight Surgeon, Aviation Accidents, Dope Poisoning and Civilian Flying

The author insists on the desirability of a separate medical service consisting of specially trained medical officers for an air service He points out that the medical officer associated with this service needs a considerable amount of training He has to learn to conduct the selection examination, to carry out the altitude test, and to superintend the maintenance of physical and mental health of the airman from his knowledge of the possible effects of a peculiar environment The standard of normality demanded of airmen in America is evidently not very high For example, the advisability of accepting a candidate for flying who has " at least 75 per cent mobility of the knee-joint, 50 per cent mobility of the ankle-joint " is open to doubt A candidate suffering these degrees of limitation of joint movement would probably not be able to keep himself fit by taking part in games and exercises, the necessity of which is rightly stressed in a later chapter In the consideration of blood pressure in a candidate the systolic pressure alone is here mentioned, nothing is said of the significance of the pulse pressure, which is considered by many to be of greater importance

It is clear that there is still much work to be done in the assessment of fitness for flying, particularly in regard to reaction time tests and the effects of high speeds upon the airman His ability to appreciate changes of motion from one plane to another is an important point difficult to estimate Major Bauer has marked out clearly the ground that will have to be explored, and his modest volume is likely to be the forerunner of a considerable mass of literature as our knowledge increases

Surgical Treatment in Ophthalmology

Therapeutique Chirurgicale Ophtalmique By Prof C Duverger (Strasbourg) and Prof E Velter (Paris) Paris Masson et Cie 1926 With 40 plates, mostly coloured Pp 180 18*s.* 4*d*

Some six years ago[1] we reviewed a book in which Dr Duverger advocated local anæsthesia by deep injection into the region of the nerves supplying the part with sensation, for enucleations and nearly all intraocular operations in which the instillation of drops is insufficient, deep injection into the region of the ciliary ganglion was recommended He and his collaborator now lay further stress on the advantages of this technique, and fully explain its detailed application in all lid and plastic operations, in excision of the lacrymal sac when injection of the infraorbital nerve canal as well as the nasal nerve is performed, and even in such major operations as the removal of retro-ocular orbital tumours General anæsthesia, they declare, has scarcely a place in ophthalmic surgery, almost the only patients for whom it is called for being young children and cases of grave infection such as orbital abscess They contend that inflamed eyes can be rendered completely insensible by their methods As this doctrine is contrary to that generally taught in this country, this section alone makes the book worthy of study by ophthalmic surgeons The other sections are no less interesting, the illustrations being throughout excellent Descriptions of innumerable lid operations are often wearisome or difficult to follow, but here the number of operations described is strictly limited, and the illustrations make the accounts abundantly clear The authors do not profess to include all the operations of ophthalmic surgery but merely the ones which they themselves recommend or have adopted For instance, we can find no reference to " epithelial inlays " and " outlays " for plastic operations to intracapsular extraction of cataract either by Smith's or by Barraquer's method, and to many other operations which might have been included On the other hand, such unusual and difficult procedures as amputation of the anterior segment of the eye, exenteration of the orbit and the formation of a new socket for an artificial eye are fully illustrated The views expressed are individual but none the less interesting No operation is described for conical cornea, because the authors do not recommend any For glaucoma the operations of Lagrange and Elliot (spelt " Elliott ") are both illustrated, and, as is perhaps to be expected in a French book, the former is recommended as on the whole the better though not the easier As a supplement to enucleation the implantation of a glass ball is condemned, while that of a piece of ox's cartilage is recommended The book may well find a place on the shelves of any ophthalmic surgeon in England who desires to keep up with the best foreign work in his specialty

Retrobulbar Neuritis of Nasal Origin

Rhinogene Neuritis Retrobulbaris By Prof Dr J Meller, Chief of the University Eye Clinic, and Dr Oscar Hirsch, Tutor in the University, Vienna Berlin S Karger 1926 Pp 62 M 1 80

Dr Meller's object in writing this essay is to maintain the thesis that retrobulbar neuritis can be caused by so slight or evanescent a grade of inflammation in the accessory sinuses of the nose as to show to the rhinologist no sign of disease, even on the most thorough examination He believes further that, in disseminated sclerosis, the special susceptibility of the optic nerve is caused by its proximity to the accessory sinuses and, therefore, that the retrobulbar neuritis of this disease is in reality of nasal origin It follows that he insists on rhinological treatment, in the absence of all signs of intranasal disease, in cases where a most careful examination of every possible cause has been fruitless Treatment is not necessarily operative, for he quotes Herzog's recommendation of " continuous ischæmia " of the nasal passages, obtained by applying adrenalin-soaked pledgets of cotton-wool to the middle meatus every two hours, instancing the case of a 22-year old girl with left-sided retrobulbar neuritis, stationary for three weeks, who recovered after applications twice daily for three days Dr Hirsch devotes a large part of his contribution to other orbital complications of sinus disease, but his main object is to support Dr Meller's thesis He refers to cases in which the mucosa of the ethmoid was found at operation to be œdematous, although the nasal passages appeared perfectly healthy, and to others where microscopical examination of the mucous membrane lining the sinuses showed inflammation, although it seemed macroscopically to be normal

Although it is possible that the authors do not allow sufficient weight to the numerous cases of retrobulbar neuritis which recover spontaneously, their arguments are well marshalled and deserve attention from oculists and rhinologists alike

Diseases Associated with High Blood Pressure

Die Hypertoniekrankheiten By Dr Eskil Kylin, Director of the Military Hospitals and of the Inpatient Departments of the District Hospitals, Eksjo, Sweden Berlin Julius Springer 1926 Pp 168 Mk 8 40

During the last nine years Dr Kylin has been working on blood pressure and its variations in renal disease, and on changes in amount and composition of the blood in diseased states All the important evidence derived from these studies and those of numerous other writers, is collected in this compact book Kylin calls attention especially to recent advances in our knowledge, and shows how our whole conception of the subject of blood pressure is being revolutionised by new work on capillary tension, peristaltic action in the capillaries, and glomerulonephritis He discusses the methods of estimating arterial blood pressure and its normal variations and gives a table of the average blood pressures in the various decades of life, based on a large number of cases According to this table, the average arterial blood pressures between the ages of 15 and 40 vary only between 115 mm and 121 mm, and the average maximum systolic pressure between 132 mm and 170 mm for the same period Two methods of measuring capillary pressure are described The first is a bloodless method, using a convenient manometer devised by him, which is light to handle and can be used with any microscope The other method consists of tubes of known calibre into which the blood is allowed to flow from the capillaries The results of the author's investigations of the capillary pressure in the prenephritic stage of so-called acute glomerulonephritis lead him to the conclusion that this disease is primarily vascular, this conception has not yet received general acceptance An important section of the book is devoted to "Essential Hypertonia," symptomatology, and variations in the blood calcium potassium cholesterin, and adrenalin being set out The last chapter is concerned with the ætiology and symptoms of permanent hypertonia Throughout the book Dr Kylin tends to emphasise ætiology and pathogenesis rather than treatment, short discussions of the prevention of acute glomerulonephritis by treating sources of infection, and of the treatment of permanent hyperpiesis by diet and other methods are, however, included

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[1] The Lancet, 1920, ii, 355

The Abdomen in Labour

By NORMAN PORRITT, M R C S, L R C P Lond, Consulting Surgeon, Huddersfield Royal Infirmary London Humphrey Milford, Oxford University Press 1926 Pp 76 5s

THIS little book is a reprint of the essay which was awarded the Sir Charles Hastings clinical prize of the B M A in 1926 The prize is awarded for work carried out by a general practitioner In his essay, the chief object of the author is to point out the advantages of abdominal over vaginal examinations for diagnosis, during labour, and in this he succeeds admirably Particularly good are the remarks on inspection of the abdomen There are a few obvious errors, much of the argument used in favour of the dorsal position appears illogical, and the illustrations are rather difficult to understand, but the book contains much that should be useful both to teachers and students

Physical Chemistry in Biology and Medicine

By J F MCCLENDON, Ph D, Professor of Physiologic Chemistry at the University of Minnesota Medical School, and GRACE MEDES, Ph D, Assistant Professor of Physiologic Chemistry at the School London and Philadelphia W B Saunders Company 1925 Pp 425 21*s*

THIS volume is divided into two sections, "Physico-Chemical" and "Physiologic" Part I opens with a three-page chapter on the concept of mass, followed by a five-page account of the structure of the atom Of these five pages two are taken up with diagrams and two with tables The net result is a wholly unintelligible summary of mass and the atom The other chapters of this section are not much better In the second section the first chapter is entitled Radiant Energy In eight and a half pages the nature of radiant energy, the quantum theory, photosynthesis, actinotherapy, and bioluminescence are dealt with The reader is then led through atomic structure and physiological action thermo-chemical considerations, colloids, and ionic equilibria in blood in quick time The recent nomograms of L J Henderson are included in the last-mentioned section The authors' knowledge of the literature, and particularly of out-of-the-way publications, is evidently great, and it is regrettable that this work, which must have caused them considerable labour, gives such a disjointed picture as to be unreadable Physical chemistry has never been a popular subject with medical workers, and a study of this book is not unlikely to turn them from it for ever Not only the paragraphs, but even the sentences lack continuity The authors pass from erythrocytes abruptly to sea-urchins' eggs, jumping off to the freezing-point of various types of coctus, with the result that a state of mental nystagmus is produced in the reader's mind

The Origin of Man.

The Pedigree of the Human Race By H H WILDER Ph D London · G G Harrap and Co 1926 With 113 figures Pp 368 12*s* 6*d*

THE author of this book is professor of zoology in Smith College, Massachusetts He gives us here a plain and very readable account of what we know and what we may surmise of the ancestry of the species *Homo sapiens* and of its several varieties The suborder anthropoidea of the primates includes Tarsius (the little nocturnal arboreal animal from the East Indies, of which so much has been lately made in the discussion of human origins) the marmosets, the ordinary monkeys, and finally the family Hominidæ which contains the gibbons and siamangs, the higher apes, and man Prof Wilder is firm in stating that there are no grounds more valid than human pride and prejudice for separating man into a different zoological family from the orang-outans, gorillas, and chimpanzees One is surprised to learn how much of the detailed anatomy of these apes is still unknown, and the detailed dissection of the different varieties of man is a promising field, which needs exploration Of extinct forms we have *Homo neanderthalensis* (which Virchow thought was a deformity, but whose existence as a constant type has now been fully established) and *H heidelbergensis* as species of man, and Du Bois's *Pithecanthropus* from Java, Dart's *Australopithecus* from South Africa, and the Piltdown *Eoanthropus*, representing the human strain or something near it after its divergence from the line which has led to the apes The book illustrates one aspect of zoological progress which is apt to cause difficulty to those who are not specialists, though Prof Wilder tides us gently over the changes of names which terminological exactitude requires; the gorilla is still *Gorilla*, but the orang-outan is *Pongo*, and the chimpanzees are *Pan* The names are in themselves so attractive that we are reconciled to them as easily as we can take to calling *Amœba proteus* by the name of *Chaos diffluens* It is to be hoped that the author will be able to find Miss Harriet Andrews, she certainly deserves to be thanked for the charming picture on p 76

Goiter and Other Diseases of the Thyroid Gland

By ARNOLD S JACKSON, M D, Jackson Clinic, Madison, Wis London · Humphrey Milford, New York Paul B Hoeber 1926 Pp 401 50*s*

THIS very complete book is written mainly from the point of view of American work, but can confidently be recommended as an up-to-date presentation of the subject The author disagrees with the theory that colloid goitre represents the resting stage of the gland following stages of hypertrophy and hyperplasia, like Plummer he believes that colloid goitre represents an active stage of the gland, and arises because under certain circumstances—i e, during rapid growth, the thyroxin in the tissues becomes exhausted Consequently the gland becomes overworked in trying to make up the deficiency, and lags behind the demands of the body for thyroxin, secreting colloid, which is stored in large quantities The author, of course, advocates operative procedures for toxic goitre, and the detailed description of his technique is one of the most valuable parts of the book, but a very useful chapter on substernal thoracic goitre is given, and its diagnosis by X rays is illustrated Plummer's treatment of hypothyroidism by intravenous thyroxin in doses short of 15 grains (the normal quantity in the body) is described Dr Jackson points out that by oral *administration alone it is impossible to make up the* loss that the body has sustained The book is largely a compilation of other people's experiments and results In a monograph on this subject by a prominent worker we would have expected his own cases to have been considered in rather greater detail The book might quite well have been condensed and the bibliography further enlarged, since several authors are mentioned in the text to whose work no reference is given The photographs of patients and of pathological and microscopical material are good

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SYNTHETIC ANATOMY.

By J E CHEESMAN Part I, The Upper Arm and Shoulder, II The Forearm, *III*, The Hand London Baillière, Tindall and Cox 1926 Each Part with index and instructions 2*s* 6*d*

THIS is a new and ingenious presentation of anatomical details by a series of transparencies, accurately adjustable on each other, which thus afford a complete idea of the limb built up on its skeleton Conservatism may lead a teacher to look askance at seemingly iconoclastic methods of inducing the student to grasp and remember the *relations of the structures with which he deals*, but these pictorial transparencies deserve careful examination We know of students who have found much help from them, and on general principles any reliable method of instruction which might make the learner think of anatomical structure in terms other than those of formal description is to be welcomed, too many students look on anatomy as the subject of a book, rather than as the structure of the body The *drawings are pleasing, especially* where the skeleton comes into the exhibited plane The treatment is conventional, in the sense that there is no claim to represent actual dissection, and such things as subcutaneous vessels and nerves are shown in purely schematic manner We *have found no errors* in the presentations, though the amount of detail given is surprising The upper limb only has *appeared* so far, the hand being of natural size, the student can enlarge the whole or part of any drawing, or make use of any combinations he pleases The transparent media, colours, and adjustments are excellent, and each index is given in both terminologies The issue of the remaining parts will be awaited with interest

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Reports and Analytical Records.

PARA-THOR-MONE LILLY

(ALLEN AND HANBURYS, LTD, BETHNAL GREEN, LONDON, E)

PARA-THOR-MONE is an active extract of parathyroid glands of cattle prepared, under the authority of the University of Alberta, according *to a method* elaborated by Prof J. B Collip It is a stable aqueous solution *of the active* principle (or principles) standardised by its capacity to increase the total blood-serum calcium in normal dogs One unit is defined as one-hundredth part of the dose required to cause an increase of 5 mg of calcium in the blood serum of a 20 kg dog, 15 hours *after injection* Para-thor-mone is regarded as a true specific in cases of tetania parathyreopriva, and has relieved the symptoms of idiopathic and infantile tetany Its use has been attended with beneficial results in some cases of arterial hypertension, in tropical sprue, and in the treatment of chronic ulcers and ulcerative colitis; it has been tried in chorea, epilepsy, and conditions of protein sensitisation, such as asthma and hay-fever In clinical cases as much as 100 units have been given in 24 hours without ill-effect, but such a dose is unnecessarily large and should not be continued or repeated daily In cases of well-marked tetany relief may be expected from 20–30 units, repeated two or three times within the first 24 hours and then diminished Doses ranging *from 10–25 units daily* have been found to prevent recurrence of tetany in the chronic form of the condition In *infantile tetany a dose of 10 units* is advocated Para-thor-mone, Lilly, may be given subcutaneously, intramuscularly or intravenously, and is supplied in 5 c cm rubber-capped ampoule-vials containing 100 units

ACETYLARSAN.

(WILCOX, JOZEAU AND CO, 15, GREAT ST. ANDREW-STREET, LONDON, W C)

Acetylarsan, as prepared at the Usines du Rhône, is an aqueous solution of a substitution product of benzene containing 23 6 per cent of oxy-acetylaminophenylarsinate of diethylamine, and is regarded by a number of French authorities as a spirillicide practically equal in activity to arsenobenzene The substance was chosen in the course of a search *for an arsenical compound of high physiological activity*, tolerated locally by the tissues, acetylarsan can be injected either beneath the skin or into the muscles without causing any pain whatever Laurent, Chatelier, Gougerot and Lacapère, among others, have conducted tests under controlled conditions showing immediate disappearance of the treponemata after administration of this drug, rapid evolution of the cutaneous phenomena *and characteristic* serological reactions The solution, which is neutral, colourless and limpid, contains arsenic in the proportion of 0 05 g per c cm The dose tolerated by mice is 20 cg per kg, by rabbits 40 cg For a man of average weight a dose of 1 15 g may be administered in one injection without adverse reaction except in rare cases of idiosyncrasy Elimination is rapid, often being complete in 36 hours, so that bi-weekly *injection is possible if desired* A trial injection of 1 or 2 c cm is recommended before the weekly injections of 5 c cm are commenced, and the usual course lasts eight to ten weeks, by the end of which time 10 g of the salt will have been given Herxheimer's reaction is practically unknown, but *there* may be nausea and possible vomiting 6–8 hours *after the injection, and occasionally a* slight brief rise in temperature In the ordinary way the injections do not interfere with ambulatory treatment Acetylarsan is supplied in boxes containing 10 ampoules each of 3 c cm A solution known as "infantile acetylarsan" is also supplied two and a half times weaker than the ordinary solution.

THORNE'S EXTRA SUPER CRÊME TOFFEE

(HENRY THORNE AND CO, LTD, THE COCOA WORKS, LEEDS)

We have received for examination samples of this toffee which is sent out in convenient sized pieces weighing above five to the ounce, each piece being separately wrapped in greaseproof paper Analysis *showed the following composition* —

Water	4 40	per cent
Total ash	1 92	„
(Containing salt)	0 77	„
Fat	23 50	„
Protein	2 60	„
Sugar	67 58	„
	100 00	„

Calorie value per lb 2204

This is a pure and palatable sweetmeat and contains somewhat more sugar than the older fashioned toffees of the Everton type The salt present is very small in amount, and those who prefer *this type* of toffee will find it an excellent one of its class

The Conduct of Medical Practice.

A Series of Articles by Experts dealing with the Difficulties Encountered in Professional Life and How to Meet Them

XXVI —CASES OF POISONING AND SUSPECTED POISONING.

By G Roche Lynch, O B E , M B ,
B S Lond , D P H ,
OFFICIAL ANALYST TO THE HOME OFFICE, DIRECTOR OF THE DEPARTMENT OF CHEMICAL PATHOLOGY, ST MARY'S HOSPITAL, LECTURER ON FORENSIC MEDICINE AT WESTMINSTER HOSPITAL

One of the most harassing predicaments of medical practice is the occurrence of some incident which leads to the suspicion that a patient is the victim of foul play—whether by interference with the treatment prescribed or by the addition of poisonous substances to food or medicine Many suspicions of this sort are totally incapable of proof and, indeed, turn out to be entirely unjustified Nevertheless, many practitioners of long standing can recall occasional cases where subsequent events have not served to abolish their doubts Homicidal poisoning in this country is rare when contrasted with some tropical countries, such as India, but it must be remembered that the criminals are not always brought to justice The intimate relations of the medical man with the patient and the household place him in an unrivalled position for close observation of suspected cases, and he is sometimes able to avert tragedy.

Statistics of Homicidal Poisoning.

From statistics of homicidal poisoning the following points stand out (1) The motive is generally of domestic, passionate, or greedy origin (2) 30 per cent of homicidal poisoning occurs in towns and 70 per cent. in country places This need not be taken to imply that there are more criminals of this type in rural districts, but rather that he is more likely to be found out, since his private affairs are known in greater detail by his neighbours In other words, the poisoner stands a greater chance of successfully evading detection in town than in the country. (3) Successful poisoners often have more than one victim to their credit (4) Mostly the crime is *premeditated*, and often great craftiness is displayed (5) Far more males commit crime than females, but the percentage of females using poison is greater than males (6) The fact that often homicidal poisoning is only discovered after an exhumation has been made, the original burial order having been granted on the authority of a medical certificate of death, shows the difficulties and responsibilities of the medical practitioner

What is a Poison ?

Poisoning may occur as a result of one of the four following circumstances (1) Administration for homicidal purposes (2) Self-administration for suicidal purposes (3) Self-administration for a special purpose —e g , abortion (4) Accidental administration

Before discussing these possibilities in detail it is pertinent to inquire what, *from the* forensic standpoint, constitutes a poison It is, however, the *intention* to murder or harm which constitutes the crime; consequently the administration of substances not usually regarded as poisons may be poisons from the legal point of view if they are administered with evil intention The sections of the Acts relating to poisoning determine the nature of the offence according to whether murder, grievous *bodily* harm, or injury or annoyance was intended The law makes use of a variety of expressions such as poison, noxious thing, destructive thing, stupefying or overpowering drug, matter, or thing in order to make the statutes as comprehensive as possible For example, 24 & 25 Vict ch 100, sec 11, reads: "Whosoever shall administer or cause to be administered or taken by any person any poison or other destructive thing with intent to commit murder shall be guilty of felony." In the section dealing with the administration of chloroform, &c , for stupefying, whereby a felony can be committed, the words used are "chloroform. laudanum or other stupefying or overpowering drug" ; in the statute dealing with abortion the words are "poison or noxious thing" Various judicial decisions, although clearing the legal position, have thrown great responsibility on the medical witness. It has been laid down that (1) there must not only be an administration of a noxious drug with guilty intent, but it must have been administered in sufficient quantity as to be noxious ; (2) if a person administers with intent (in the particular case in which the ruling was made "to procure the miscarriage") something which as administered is noxious, he administers a "noxious thing" A distinction is to be drawn between a thing that is only noxious when given in excess and one which is recognised as a poison and known to be noxious and pernicious in its effect. The law does not make any distinction regarding the mode of administration Administration hypodermically, by mouth, per rectum, or elsehow, of a poison with intent to murder or injure are punishable felonies The only question that will be raised is whether the substance dealt with is noxious Similarly also the admixture of cultures of micro-organisms or their toxins are equally poisons and have the same significance The medical witness will have to decide whether a substance was noxious and whether it was given in excess, and into this consideration the age, health, tolerance of the victim will enter, and repeated administration of small doses may have to be considered

The words grievous bodily harm require elucidation. It has been defined as the infliction of an injury which seriously interferes with health or comfort or both. It need not be permanent or dangerous

How to Investigate a Suspected Case

The method of approaching an investigation, when, from information received from a second person or from personal observation, suspicions are aroused that foul play may be occurring, require careful consideration Suspicions, once aroused, soon assume formidable dimensions unless each incident is critically examined and a natural explanation sought, and rarely are they subsequently justified During the two years subsequent to the mention of poisoned chocolates in the case of R *v* Armstrong numbers probably running into hundreds of samples of chocolates were submitted to analysts in this country alone , in only two or three cases was poison found, and in those cases the methods of tampering with the sweets were of the crudest nature

When poisoning is suspected the physician should attempt to take apparently motiveless steps to circumvent operations by alteration of diet or the time of day at which food is given, in order to make things difficult for the suspected person. If medicines are suspected as being tampered with they should be changed, in such a way that a poison may demonstrate itself by taste or colour change , or a dye-stuff may be added so that the addition of an alkaline or acid substance would be seen A nurse may be engaged or a previous nurse changed, and given strict orders to prepare food, but she should not be given a hint of what is going on Visitation of the patient by a suspected person may be forbidden for *ordinary medical* reasons or only allowed in the presence of the nurse The aim of the doctor should be *not* only to protect his patient, but also, if possible, to detect the poisoner, and thus prevent future attempts If serious symptoms develop removal to a nursing home or hospital should be insisted on, so that the patient is out of reach of danger Careful notes of everything that happens must be made at the time and kept for reference Specimens of excreta likely to contain poison should be saved, especially those passed within 21 hours of the time when the poison was suspected of being given The doctor should himself carry them to his house and should keep them in a clean closed vessel, sealed and labelled A brother practitioner should be called in consultation and suspicions communicated to him, in this way an independent witness is made available if required, and, moreover, the benefit of advice for future conduct of the case is obtained Further than this it is impossible to go unless suspicions are supported by fact Without provable facts it is impossible to set the machinery of the law in action. A communication to the police would at once start an elaborate investigation, questioning, and even perhaps detention of individuals possibly a search of the house and probably publicity would ensue, all of which, unless the suspicions were correct, would at least inflict great hardship on innocent individuals At worst it could lead to a possible action for damages against the medical attendant and the ruin of his practice should the suspicions be not subsequently confirmed

When information is given to the doctor by a member of the household suggesting that a third person is attempting to poison the patient, the doctor should advise the informer to communicate with the police if sufficient proof is available Probably the proof will be insufficient and no steps will be taken The doctor should then invite the individual to cooperate with him in endeavouring to bring the allegation to a satisfactory termination, but he must at the same time be on his guard against false evidence actuated from interested motives and against an attempt of a guilty person to throw the blame elsewhere The doctor must feel his way with the utmost caution, but he cannot afford to neglect the information In such a case, if the patient is confined to his bed through illness, the doctor may with advantage urge removal to a nursing home or hospital

In some cases the doctor may first hear of the suggestion of poisoning through the supposed victim (A), who will generally come armed with various articles of consumption believed to be poisoned Such cases may be divided into the following headings (*a*) suspected poisoning of (A) by (B), motive unknown, (*b*) suspected poisoning of (A) by a lunatic or borderline case or uncertifiable case—e g, husband suspected by wife, (*c*) suspected poisoning of (A), a borderline case, by a relative, (*d*) suspected poisoning of (A) by a person interested—for example, financially—or by a companion likely to benefit Regarding these conditions motive will have been found by the informant who believes that the poisoner has a grievance—e g, love affairs, pecuniary reasons, and so forth. Generally speaking, these charges are without foundation, and incipient insanity of either party dependent on changes associated with involutional states must be borne in mind The practitioner's duty here is simple He will at once instruct the victim to collect material or excreta for analysis, or will arrange for the analysis to be made on the material already produced, at the expense of the victim, and advise the victim to wait for the result before action is taken by him or her He will be prudent to get the needful fees for analysis in advance If the victim is in a highly nervous state from worry, the practitioner should suggest his going away to friends until the result is known. When the result is known the victim may be satisfied that he or she is wrong or, what is more likely, will not be satisfied, alleging that the analysis failed to find some subtle poison If the doctor cannot alleviate suspicion by persuasion he can but advise going to the police, but on no account should he take this step himself If he knows of some reliable relative who will intervene, he should urge the patient to inform the relative so that a consultation may be held as to what steps are to be taken Inquiry by the police will, of course, come to nought in that large majority of cases where no crime exists, but may result in satisfaction to the aggrieved party The police will interview the doctor, who should give a full and unbiased opinion of the state of affairs as he sees them. If the doctor can satisfy himself that the aggrieved person is in an abnormal mental state, he may be well-advised to inform the person against whom the allegations have been made with a view to preventing possible assaults or retaliation, and possibly with a view to having the individual certified or provided with a nurse companion.

The Problem after Recovery

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The question of informing the convalescent patient of the nature of the illness will depend on the analyst's report If positive, the patient must be informed of the nature of his illness, and if the evidence has been sufficiently strong to detain anyone, this fact must also be communicated to him If, however, no action is likely to be taken against any suspected person, the suspicions had better not be communicated to the patient but further investigation left to his initiative

The Cost of Analysis

In cases of suspected homicidal poisoning, whether the poison is known or not, the medical attendant should reserve specimens of excreta or partly consumed food for analysis. A difficulty arises regarding the cost of the examination. It is hardly likely that the suspected homicide will agree to pay for the analysis, thus providing evidence against himself, and, indeed, it may be unwise to acquaint him of the fact that poisoning is suspected at this stage of the investigation. Any mention of the fact to the patient will also be equally undesirable, unless the patient himself suspects poison. The doctor is, therefore, faced with two alternatives: (1) To bear the cost himself, which is obviously unfair, as his chances of the recovery of the cost is remote, whatever the issue. (2) To inform the police and request them to take the necessary steps for an analysis. This, as has been already pointed out, will necessitate inquiries at a stage when the medical attendant desires to avoid them. There is, however, a third course which may assist the medical attendant in his difficulty. He may make application to the Under Secretary of State, Home Office, for assistance, giving a full account of the matter and the reasons for his suspicions. The Under Secretary of State may then cause an analysis to be made at the expense of public funds, if he thinks that the facts warrant it. The authorities at the Home Office, fully realising the delicacy of the doctor's position, can delay active inquiry into the case until the result of the analysis is known. Such an application should only be made in serious cases, but is a resort which may be of great assistance in an anxious situation. Should the Home Office consider that it is a case for their intervention they will inform the doctor of the necessary procedure.

What to Reserve and How to Reserve It

It is obvious that every article of food or medicine which may be suspected of being tampered with should be reserved and kept under lock and key by the medical attendant. All excreta, urine, faeces, and vomit should be similarly treated, and especially those leaving the body within 24 hours of the time when the suspected poison was believed to have been taken. However, over-anxiety in suspected cases of the doctor may defeat his own object by putting the poisoner on his guard and causing anxiety to the patient. The doctor may have to be content with reserving one or two articles; positive findings in excreta are of greater value, as they prove the fact that the individual did actually imbibe poison. Generally speaking, the urine will be the most valuable specimen to reserve and the easiest to procure, and in order to obtain sufficient the doctor can ask for night and morning specimens and have them passed in his presence. The material or materials reserved should be placed in clean bottles, preferably rinsed out by the doctor just before filling. They should be securely corked and sealed by him and labelled with the patient's name, date of collection, the nature of the material and the initials of the doctor. On no account whatever should any preservative be added. It does not matter if the contents become fouled during the time which elapses between the taking of the specimen and the analysis. The possible risk of a poison becoming decomposed is slight, but the addition of an antiseptic (in most cases a poison) may so complicate the examination that the analyst may be unable to give a definite opinion on the presence of poison. The doctor should content himself with keeping the bottles in a cool place.

Dying Declarations

When a patient is dying but is of sufficiently clear mind to give an account of the facts leading to his illness, it will be the duty of the medical man to take a dying declaration. In cases of death by poison it will probably be rare that an opportunity will occur for a declaration to be made, but in accident and suicide cases they may be of importance in removing suspicion from a third person in the investigation of the cause of death. A dying declaration is an exception to the strict laws of evidence which exist in criminal courts. The essential point of these declarations is that the individual must realise that he is about to die and has no hope of recovery. They should be made in the presence of a magistrate if time permits, but if necessary must be taken down by the medical attendant. The following lines should be observed by the doctor. He should:—

(1) Secure a trustworthy witness.

(2) Make certain that the individual is convinced that he is about to die; a statement by him to that effect should be made in the declaration.

(3) Write the exact words of the patient.

(4) Ask only those questions which are deemed essential to clear up any ambiguities or doubtful points, and ask as few as possible.

(5) Record questions and answers.

(6) [illegible] only of what was said by the dying man or woman.

(7) Read the declaration to him and get him to sign it or put a mark.

(8) Sign it yourself and obtain the signature of the witness.

(9) If unconsciousness supervenes record as much as you can and sign it and obtain signature of the witness.

Should the patient recover, these declarations are invalid, as the individual is then able to give evidence himself and be cross-examined. Dying declarations are based on a legal assumption that a person in sight of death speaks the truth.

Withholding the Certificate

If the medical attendant cannot give a certificate of death from some natural cause the coroner must be informed. If the patient is a stranger to him he should be specially on his guard, since a homicide may send for a stranger rather than a medical man who knows the family well. Or he may send for a strange doctor to witness the body and, failing to obtain a certificate from the latter, he may then apply to the family doctor, who knows the deceased's "constitution" and may be tempted to give a certificate on the strength of that general knowledge.

In all cases of death from poisoning it is the duty of the medical attendant to withhold certification of the fact and immediately to inform the coroner of the circumstances. This should be done as soon as possible, to enable the authorities to commence inquiries at the earliest possible time. Thus the event of accident or suicide will be cleared up without any suspicion, and at the same time the police will be best enabled to collect information to apprehend any guilty party in homicide cases. In cases where poison is only suspected the medical attendant must consider whether his suspicions are sufficiently certain and capable of proof to warrant his withholding the certificate. Further, he must consider whether anyone else is likely to inform the police if he does not; whether the police are likely to hear of the matter through any gossip, and whether any open accusation has been made in the household of the deceased in his, the doctor's, hearing. If scandal has occurred it is the medical attendant's duty to put the facts before the coroner and to abide by his decision.

The doctor should, before leaving the house, take possession of any bottle, tumbler, food, or material suspected of containing poison. Relatives even in suicide cases often attempt to destroy this evidence in the vain hope that any stigma resulting from the coroner's inquest may be avoided. The doctor may be pressed to give a certificate of death to avoid these inquiries, but he must be firm in refusal, else he may find himself in a very difficult position with the coroner, to say nothing of a possible charge of false certification of a legal document.

Chronic Poisoning and Notification

In the case of patients suffering from chronic poisoning caused through the nature of their employment, it is the duty of the medical attendant to notify the Chief Inspector of Factories at the Home Office, giving the name and address of the patient and the nature of the disease from which the patient is the

the time when the poison was suspected of being given The doctor should himself carry them to his house and should keep them in a clean closed vessel, sealed and labelled A brother practitioner should be called in consultation and suspicions communicated to him, in this way an independent witness is made available if required, and, moreover, the benefit of advice for future conduct of the case is obtained Further than this it is impossible to go unless suspicions are supported by fact Without provable facts it is impossible to set the machinery of the law in action A communication to the police would at once start an elaborate investigation, questioning, and even perhaps detention of individuals, possibly a search of the house and probably publicity would ensue, all of which, unless the suspicions were correct, would at least inflict great hardship on innocent individuals At worst it could lead to a possible action for damages against the medical attendant and the ruin of his practice should the suspicions be not subsequently confirmed

When information is given to the doctor by a member of the household suggesting that a third person is attempting to poison the patient, the doctor should advise the informer to communicate with the police if sufficient proof is available Probably the proof will be insufficient and no steps will be taken The doctor should then invite the individual to cooperate with him in endeavouring to bring the allegation to a satisfactory termination, but he must at the same time be on his guard against false evidence actuated from interested motives and against an attempt of a guilty person to throw the blame elsewhere The doctor must feel his way with the utmost caution, but he cannot afford to neglect the information In such a case, if the patient is confined to his bed through illness, the doctor may with advantage urge removal to a nursing home or hospital

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THE LANCET.

NDON: SATURDAY, JANUARY 1, 1927.

OSPITAL ISOLATION OF MEASLES.

new policy[1] in respect to the isolation of s which has recently been decided upon by etropolitan Asylums Board, should help to rate conditions which press hardly on child life poorer classes of the metropolis. The scheme, be remembered, consists in allocating to the ent of measles, at times when the disease is nt, a large proportion of the beds in the public hospitals hitherto assigned to scarlet fever, ality of which, in hospital-treated cases, is oout one-tenth of that of measles. Were the r of beds in these hospitals unlimited, the on of both diseases up to the full requirements present no difficulties. There would be room and no application for removal in the case of disease would have to be rejected. Unfor- y, during times of high measles prevalence riod of which usually extends over three or onths and recurs about every second year, al number of beds available in the fever ls is not commensurate with the requirements of alone and cases can only be received at the of scarlet fever. This in effect involves the n of cases for admission in respect to both if the beds are to be utilised to the best ge, and opinions may differ as to the grounds h a case should be regarded as qualifying for on—whether, for instance, the severity of the or the adverse home conditions should be the ning factor It is, however, admitted that ung complications are prone to supervene in occurring in a poor home, although the may have bid fair to pursue a favourable t the outset. Then there is the question who ost suitable person to make the selection— cal attendant or the health visitor acting as of the medical officer of health. Ultimately it where the available accommodation is he decision must rest with the latter official r whether he obtains his information about from the general practitioner or through his own subordinates. The chief aim is e of delay in procuring admission to hospital ystem best adapted to secure this is the best tion.

idon, equipped as it is with a number of lation hospitals, each containing some 400 eds, it should practically always be possible te to measles a number of separate wards, admission of this disease is not attended same difficulties as in provincial towns with tion of, say, 30 000 to 150,000, where the pital accommodation is usually limited to ds. The difficulties attending any attempt for measles in these circumstances is fully d by many of the provincial health officers. ld gladly follow the example of London. Within their limited accommodation these municipal hospitals are designed to receive not only scarlet fever and diphtheria, but on occasion cases of typhoid, cerebro-spinal fever, or encephalitis as well; at the best of times there remain a few cases of scarlet fever and diphtheria under treatment, and a spare ward is rarely available Consequently, surplus accommodation in the smaller fever hospitals cannot be expressed in terms of spare wards, but as spare beds in occupied wards, which cannot be used for measles. It is true that at Fazakerley, for instance, measles is treated with all other infections in the same ward by the method known as " bed isolation, but for this purpose two safeguards are essential to success—viz., a tried and specially trained nursing staff and a certain measure of selection of cases. And these conditions would be difficult to secure in the smaller hospitals with their fewer beds and frequently changing staff. When however, it is possible to spare a small ward for the purpose, it is of paramount importance that removal to hospital should be effected at the earliest possible moment, in order to forestall, if possible, the supervention of capillary bronchitis and broncho-pneumonia In the selection of cases for removal both factors—severity of attack and unsuitability of the home environment—should be taken into account if the best results are to be secured. The advent of broncho pneumonia is, indeed, a very serious handicap and early removal to hospital is a potent influence in its prevention, but even should this dread complication have already supervened, manifest improvement in the child s general condition often follows admission to a hospital ward, where it meets, perhaps for the first time, with a plentiful supply of fresh air, good food and proper nursing

Admittedly difficulties are encountered in catering for measles in the smaller isolation hospitals, indeed they are frequently regarded as insurmountable by the boards which administer the hospitals for infectious diseases Some of these, as a contemporary trenchantly points out[2] have " degenerated into penitentiaries where convalescent scarlet fever is prevented from obtaining efficient treatment." In rural areas, at all events, the local board is too apt to take the view that the removal of an infectious patient from the community is the whole object of hospital isolation Victims of infectious diseases are hurried off to the fever hospital whose staff and equipment fall far short of requirements. Irregularity of demand and the need for economy are mainly responsible for this; it is costly and difficult to secure a rapid increase in the number of experienced nurses in response to a sudden and unexpected call. But the aim of any progressive isolation hospital board should be to give precedence to infections which are serious and need specialised treatment, and to discard segregation as a primary function Even if only a limited number of serious cases of measles can be received into hospital from among the inhabitants of the poorer districts it is well worth doing It cannot be too strongly insisted that the saving of life is the main consideration, and the medical officer responsible for the allocation of beds in the local hospital in striving to achieve this end should be free to pursue the course which in his opinion is most likely to prove successful. Where the control of the local isolation hospital is vested in the medical officer of health for the district the limited number of beds at his disposal is likely to be utilised to the best advantage, but where, as is often the case in country opinion of his doctor is suffering. Notice must also be sent to the Factory Inspector and to the certifying surgeon of the district in which the factory or workshop is situate.

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[1] LANCET, Oct. 23rd p 865, and Nov. 6th, p 974

[2] Medical Officer Dec. 4th, 1926, p 237.

The diseases to which this applies are lead, phosphorus, arsenical and mercurial poisoning, and to infections from anthrax. A fee of 2*s* 6*d* is paid for the notification.

Sale of Poisons.

The statutes governing the sale of poisons are numerous and the provisions varied. Medical men, especially those who dispense for themselves, should acquire a working knowledge, in particular of the Poisons and Pharmacy Acts, 1868–1908; the Medical Act, 1858; the Medical Council Act, 1862; Dangerous Drugs Acts, 1920, 1923; Narcotic Drugs Orders, 1916, 1918. These various Acts lay down conditions under which various poisons and dangerous and narcotic drugs may be prescribed and dispensed, the keeping of records; schedules of poisons within the meaning of the Acts and conditions under which they may be sold by a doctor, by chemists, and by shopkeepers; the delegation of dispensing duties to unqualified persons and sale of poisons to unknown persons; regulations for labelling and placing of poison in distinctive bottles recognisable in the dark, &c; sale of narcotic drugs to lay people and officers of the armed forces of the Crown; colouring of arsenic before sale of that which is not used for medicinal purposes. In minor details the position varies in Ireland compared with the rest of the British Isles. In addition there are two Acts which may be mentioned as having a possible bearing on poisoning; these are (1) Poisoned Flesh Prohibition Act, 1864; (2) Drugging of Animals Act, 1876. These Acts are designed to prevent the unauthorised destruction of animals other than the destruction of vermin, but prosecution may be undertaken in the event of poisoned food being left about in such a manner that it might be consumed by human beings.

Range of Poisons Obtainable

The Schedules of the Poisons and Pharmacy Acts, Arsenic Act, and the Dangerous Drugs Act limit the range of poisons likely to be used in this country and have a further bearing on the chance that any Act may be selected. The profession or trade of an individual must, however, be borne in mind, since he may have special access to poisons. Also, though to a less extent, failure to carry out the provisions of the Acts must be allowed for. Chemical manufacturers, chemists, and laboratory workers are able to obtain an almost unlimited range of poison, and can further obtain these poisons in a pure state without the addition of colouring matter.

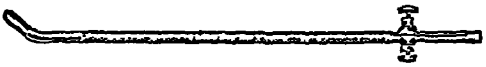
There can be no doubt that the limitation of the sale of poisons in this country, and the recording of sales in the poison book at the place of purchase, has greatly limited poisoning not only in amount but also in range. Since the operation of the Dangerous Drugs Act the falling off of suicide from narcotic drugs is marked. When coal-gas, phosphorus (vermin-killer), arsenic (weed-killer or sheep-dip), strychnine (vermin-killer), barium (vermin-killer), antimony, mercury, and oxalate have been excluded, there are but few poisons which are likely to be obtained for homicidal purposes. The strong acids, alkalies, cyanides, carbolic group and, indeed, some of those mentioned above are unlikely to be used owing to the impossibility of disguise of taste and appearance. The possibility of scheduled and rare poisons being used must not be entirely disregarded, since these may be obtained by individuals abroad, but the chances of such access are generally ascertainable.

Accidental cases frequently arise from mistakes in handling of dispensed medicines, fatal medicines and lotions, and disinfectant solutions. Attempts to limit these have been made by regulations for keeping, dispensing, and selling of poisons carried by the Pharmaceutical Society with consent of the Privy Council, and these have done much to prevent accidental poisoning.

New Inventions.

PROSTATIC DIATHERMY.

In order to apply heat to the prostate by a diathermy current I have used the electrode illustrated herewith. It is made in the shape of an ordinary cystoscope, the beak being made of vulcanite and the horizontal part of metal. One inch from the junction of the vulcanite and metal the metal is decreased in diameter so as to allow the greater part of the shaft to be covered by an insulating layer of silk web. The electrode is hollow, and a thermometer is fitted to it so that the temperature of the exposed metal part can be kept under constant observation. The electrode is used in combination with a lead girdle electrode round the pelvis below the iliac crest, in the same way as Cumberbatch has described for use in diathermy of the cervix. The internal electrode is passed into the bladder and the end is then depressed until the metal is horizontal; it is then withdrawn until the beak impinges on the internal meatus. Measurements in many cases have shown that the internal electrode in this position is very nearly in the centre of the lead girdle (within ¼ inch). With the diathermy apparatus which has been used with it, a current of about 700 m.a. records a temperature of 114° F., which had been found not to cause any pain and not to be followed by any unpleasant after-effects. It is too early yet to report on the clinical value of this method of treatment, but it is here described as a method of applying heat by diathermy to the prostate.

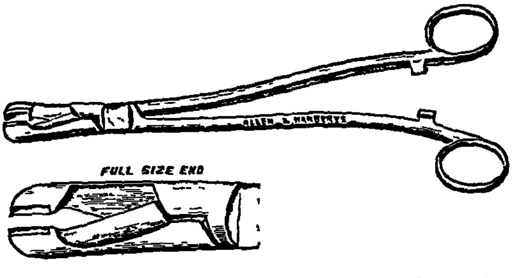


This electrode has been made for me by the Holborn Surgical Instrument Co.

G. F. Stebbing, M.B., B.S. Lond.

COMBINED SCISSORS NEEDLE-HOLDER FOR PERINEORRHAPHY.

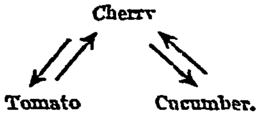
The instrument here illustrated is most useful in the repair of perineums. No operation on the female genital organs causes so much irritation to the operator, requires so much assistance, or repays the patient and the community more than a successful operation for prolapse. The swabbing of the wound, the retraction of the cut edges of the vagina, the insertion, tying, and cutting of the numerous sutures, requires many hands. I find the equivalent of one hand is saved by this instrument. The idea was suggested by seeing Mr. H. D. Gillies use his scissors needle-holder. The instrument explains itself. The assistant swabs and retracts by holding the short end of the last suture. The operator, by means of the instrument, inserts his suture, ties the suture with the instrument still in his hand, and then cuts the last short end and the long end of his present suture with the scissors in the needle-holder.



The scissors needle-holder is manufactured by Messrs. Allen and Hanburys, Ltd., of Wigmore-street, London, W. 1.

W. McK. H. McCullagh, M.B., B.Ch. Belf.,
Harley-street, W. F.R.C.S. Eng.

ageing, for the expressed juice retains its infectivity for a very long time—as long as three years Now the virus of the disease in the cucumber behaves quite differently The infectivity of the expressed juice disappears rapidly in one or two days, it is destroyed by drying, by treatment with alcohol and by heating. But the infective agents of both the tomato and the cucumber will pass through a Berkefeld filter and will remain active in dilutions of 1 1000 These observations would appear to furnish strong evidence in support of the theory of the dissimilarity of the two diseases Against this must, however, be set the observation that the disease has been transmitted from the cucumber to the tobacco plant The disease has not so far been transmitted directly from the tobacco plant to the cucumber, but only indirectly by first infecting the pepper from the tobacco and then transmitting it to the cucumber The virus of the disease in the tomato behaves towards the various agents mentioned above in the same way as the virus from the tobacco plant—that is to say, it is resistant to ageing, drying, heating and to treatment with alcohol. Here again the disease cannot be transmitted from the tomato naturally affected with the disease to the cucumber, or vice versa, but it can be transmitted from the ground cherry naturally affected with the disease to the cucumber and vice versa. The ground cherry (physalis) can also be infected with the disease from the tomato and from the cherry thus infected from the tomato the disease can then be transmitted to the cucumber. The ground cherry can therefore serve as intermediate host of the virus between tomato and cucumber. This relationship can be expressed in the following diagram :—



Up to this point mosaic disease presents an apparently inextricable maze of contradictions In a recent paper [1] presented for the degree of Ph D at the University of Wisconsin Mr M N. WALKER has attacked the problem and has succeeded in finding a way out. He has studied the resistance of the virus to the various agencies mentioned above in the tomato the ground cherry and the cucumber when naturally affected with the disease He then produced the disease in those three plants by cross inoculation (in the tomato from the ground cherry, in the ground cherry from the tomato, in the ground cherry from the cucumber, in the cucumber from the ground cherry, and in the cucumber from the tomato, using the ground cherry as intermediate host), and studied the behaviour of the virus in these experimentally transmitted diseases He found that the virus of the disease in the ground cherry was always resistant to ageing, heating drying, and alcohol, whether the disease had affected the plant spontaneously or whether it had been transmitted to it from the tomato or the cucumber. The same held good for the virus of the disease in the tomato In the disease of the cucumber the virus was always found to be readily destroyed by these agencies whether the disease had affected the plant spontaneously or whether it had been transmitted to it from the ground cherry or indirectly from the tomato The evidence is therefore in favour of a single cause or agent for all mosaic diseases but the evidence also indicates that the properties of this causal agent may be decidedly changed according to the species of plant which it has infected Although the author does not say so the interest of the work on mosaic disease extends beyond the solution of a particularly intricate problem The phenomena observed in this case will have to be taken into consideration in the investigation of virus diseases in animals. Differences in the susceptibility to such agencies as ageing, drying heating alcohol would be considered as reliable evidence for the differentiation of bacteria or of chemical substances, which cannot be isolated, such as ferments, immune bodies and so on But such evidence can no longer be accepted as conclusive for a virus This peculiarity may possibly be due in part at any rate, to the loose use of the term "virus" In mosaic disease infection is brought about experimentally by the expressed juice of the plant and to this the term virus is applied. But this extract is merely the vehicle for the infecting agent and contains in addition a great many other substances, the presence of which may affect the resistance of the virus to the various agencies mentioned above and even its infecting power for a different species of plant, to such an extent as to give to the virus the appearance of a specific pathogenic agent which it does not really possess

Now, the same considerations hold good for virus diseases in animals Here, also the transmission of the infection by tissue extracts or exudates has always been attributed to the presence of a virus by itself, and the presence of other substances which might affect the biological behaviour of the virus has been disregarded As a result, the same problems have arisen as in mosaic disease of plants Recent work on foot-and-mouth disease has yielded evidence which is interpreted by some as indicating a plurality of viruses, all of which produce the disease in different species According to the report of the American Commission, the horse is very resistant to the experimental infection with the virus from foot-and-mouth disease of other species But it suffers spontaneously from a disease called vesicular stomatitis, which resembles foot-and-mouth disease. Infective material from a vesicle of this disease when injected into guinea-pigs produces typical foot-and-mouth disease The diseases due to the vaccinia virus present a similar picture A great many different species of the higher animals are susceptible to the disease. But if the disease occurs spontaneously in one species its infectivity is very often narrowly restricted to that particular species Thus sheep-pox is spontaneously only infective for sheep and not for goats or other species of animals If the disease occurs in goats its spontaneous infectivity is restricted to goats, and does not extend to sheep. But experimental transmission can often break through this specificity. In some cases what appears to be a distinct disease has been shown to be due to the vaccinia virus Thus the infectious disease of horses known as pustulous stomatitis, which breeds true in that species, is produced by a virus indistinguishable from that of vaccinia so that the disease is, in fact, a different type of the horse-pox of Jenner. Again, the virus of epithelioma contagiosum of fowls is, according to some observers, identical with that of vaccinia, although this identity is denied by others The similarity of these conditions to those obtaining in mosaic disease of plants is obvious On the one hand there is the wide distribution through different species On the other there are the same problems of the curious limitations of infectivity, and they have probably arisen for the same reason that while by a loose process of reasoning the virus is identified with the infective material, the latter contains other substances which modify the action of the virus. This is very clearly exemplified by the recent work in another group of virus diseases—namely, the filterable malignant neoplasms of the fowl, discovered by Rous He described three different types of tumours and a few others have been recorded since by other workers Each type of tumour yields an extract which will transmit the disease in the same breed of fowls and reproduce exactly the same type of tumour. The pathogenic action of these tumour extracts is, therefore, highly specific and as the extract was identified loosely with the virus, the specific pathogenic action was attributed to the virus. It thus became necessary to assume a different virus for each type of tumour. But since these filterable malignant neoplasms do not spread by infection, but, like the non-filterable districts, the control is in the hands of a joint hospital board, the health officer is not infrequently faced with opposition, if not actual obstruction In circumstances such as these the only course open to him is to make urgent and repeated representation to the controlling authority as to the way in which, in his opinion, existing beds should be allocated, at the same time calling the attention of the board to the responsibility which they must be prepared to shoulder in the event of refusal Tactful persistence may in the end bear fruit even to the extent of securing extension of existing accommodation

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[1] A Comparative Study of the Mosaic Diseases of Cucumber Tomato, and Physalis, Phytopathology, July, 1926

IMITATION AS A FACTOR IN SUICIDE

A DISCUSSION on carbon monoxide poisoning, which took place at a recent meeting[1] of the Medico-Legal Society, was concerned with the increase of suicide in this and other countries, and particularly with the frequent use of coal-gas for that purpose Such a use was almost unknown in this country before 1895, but it now accounts for one-third of the suicides in some Scottish towns, whilst in England the number of suicides by this means has more than trebled in the last six years Although the addition of water-gas to the domestic supply adds to its toxicity and, according to Dr DOUGLAS KERR, has been followed by an increase of accidental poisonings, yet the increase of suicide by inhaling coal-gas is an independent phenomenon doubtlessly affected by the publication of detailed reports of the methods used in particular cases These reports appropriate enough in a text-book of forensic medicine, have taught the public that in coal gas is to be found a means of escape from life's troubles that closely fulfils the classical three requirements of successful therapy—*cito, tute et iucunde* But even when the influence of this knowledge is admitted we cannot be sure that it affects more than the manner of the suicide, for it may be argued that if the one method were not available some other would be used This is true to some extent, for with the increase of suicides by poison, including coal-gas, there has been a diminution of those in which clumsier means of voluntarily ending life were employed, if it were a general truth it would stultify any precautions by which we seek to impede the obtaining of poisons lest they should be used for suicidal purposes Yet, though we can only speculate how far opportunity is responsible for suicide and how far we can expect to influence its incidence by precautionary measures, there can be no hesitation in condemning the publication of descriptions of easily achieving the end There are sources of poison accessible to practically everyone—in gardens and hedgerows, for example—and a sensational case of the use of some vegetable poison, reported with full details, might start a new fashion by providing opportunities that are now lacking through ignorance It may be fortunate that the story of the death of Socrates has no news value

To find ourselves advocating that knowledge of easy means of self-destruction should be withheld from the public is, however, a situation that itself invites comment Imitation and suggestion may be offered in partial explanation of the increase of suicide, but they can only operate in the presence of other determinants These determinants, so far as they are unknown, constitute the actual problem, and their investigation is imperfect, for obvious reasons Friends and relatives often testify at an inquest that the deceased had no known reason for his act, and the frequent invocation of "nervous breakdown" hides under an evasive nomenclature our ignorance of causes The stereotyped verdict of 'Suicide whilst temporarily insane" is, of course, a relic of the times when a verdict of *felo de se* involved both denial of religious burial and interference with the rights of successors

It is probable that relatively few suicides occur among sufferers from the major psychoses, some must be attributed to misfortune or physical illness, which has led to a reasoned decision on the part of the victim, alcoholism, which itself calls for psychological explanation, accounts for others, but, to judge roughly from newspaper reports, a great many occur when the victim has been in a state of emotional disturbance out of proportion to any ascertainable cause The last group probably accounts for the increasing rate, and since such emotional disturbances are commonly found among the sufferers from the varied psychoneuroses, we may expect to have light thrown upon the increase by turning to the study of such patients They commonly tell of compulsive thoughts of suicide (but only, as a rule, to those in whom they have confidence), and it is recognised among those accustomed to handling them that a frank discussion of the thoughts is the best means of avoiding their fulfilment The patient who is without opportunity for this discussion, or avoids it, is in danger of being attracted by any easy means that is offered, he is, we may suppose, the kind of man that is influenced by imitation or suggestion Whether there is an increase in the incidence of psychoneuroses is another question The belief is often expressed that such an increase is taking place, but the belief has been current for at least 40 years and may be only a variant of the everlasting lament for bygone days, it is incapable of verification Modern conditions may, perhaps, offer occasions for manifestations that would otherwise remain latent, and, as a specific instance, the widespread knowledge of the lethal uses of coal gas may provide opportunities for a particular tendency which might, in the absence of the knowledge, never come to fulfilment

THE MECHANISM OF VIRUS INFECTIONS

MOSAIC disease of the tobacco plant has been of interest to animal pathology because it led to the discovery of the class of infecting agents which are microscopically invisible and able to pass through Berkefeld filters It was discovered in 1892 by D IWANOWSKI and called a "contagium vivum fluidum" by M W. BEIJERINCK, who studied the phenomenon in 1899 It is therefore the first representative of a group of infecting agents now known as "the filterable viruses" As happens so frequently in pathological research, further work on mosaic disease, which was carried out mainly in America, complicated rather than simplified the problem One line of investigation showed that mosaic disease could be transmitted to plants of widely separated families, while another line gave indications that the same plant may exhibit several different types of the disease In the genus Solanum, for instance, seven different types of the disease have been described One line of evidence, therefore, leads to the theory of a single mosaic disease spread widely throughout the vegetable kingdom, the other indicates the existence of a number of distinct types of mosaic disease which may occur even in the same species Observations on the resistance of the virus of mosaic disease of the tobacco plant show that it is very resistant to drying and heating and to treatment with alcohol up to a strength of 50 per cent It is also very resistant to emulsions of these brains, instead of neutralising, actually had an activating effect on the virus, and reduced the time of incubation. The activating factor was compared to an aggressin. The period of incubation was also shortened if one or two intradermal inoculations of the glycerinated brain emulsion were given on the days immediately preceding that on which the intracerebral injection of virus was carried out. Perdrau, therefore, came to the conclusion that the failure to transmit encephalitis by a single intracerebral inoculation of human material was due to the presence of an inhibitory substance or antibody in the human cerebral tissue. A technique was devised which consisted of keeping the human brain material in 50 per cent. glycerine saline in the cold, and testing it on the rabbit at weekly intervals for four or five weeks. The rabbits were given intradermal, intracerebral, intradermal and intracerebral inoculations respectively on four successive days. It was found that as the brain material was kept it became more active, and three strains of virus, from as many fatal cases of encephalitis, were isolated. One of these strains proved, by cross-immunity and other tests, to be identical with herpes virus. The other two strains were less virulent and are regarded as similar, though this has not definitely been shown. On the basis of these results, Perdrau upholds Levaditi's view that the virus of epidemic encephalitis is identical with that of herpes febrilis. Owing to the small number of experiments, no definite conclusion can be reached, and confirmation from a much larger series of cases is necessary before Levaditi's contention can be regarded as proved. It is curious that the inhibitory substance or antibody should be present only in human brain material, because the brain of a rabbit dead of the disease is infective in extremely small amounts; doses as small as 0.001 c.cm. of a paper filtrate of a 20 per cent. brain emulsion, when inoculated intracerebrally, will usually prove fatal. Similarly, transmission by corneal scarification can easily be accomplished with an infinitesimal amount of herpes material.

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[1] THE LANCET, 1926, ii, 1218

ULTRA-VIOLET RAYS AND VACCINE THERAPY

The discovery of vitamin D, the proof of the antirachitic value of ultra-violet rays from any source, and the experimental photosynthesis of the antirachitic factor in cholesterol or closely associated substances, have set many theorists explaining the probable mechanism of the body's reaction to ultra-violet rays. Dr Paolo Iacchia, writing in *The Pediatria-Archivio*, essays to explain the mass of established facts of actinotherapy, and seeks a rational basis for a special line of treatment that has given hopeful results in his hands. Dr Iacchia believes that the effect of ultra-violet rays is to be explained in an increased ionisation of the electrolytes dissolved in, or loosely combined with, the blood plasma. He counters the criticism that very little ultra-violet light penetrates the skin by pointing out that microtome sections of skin are not comparable with the living skin and that the thickness and cornification of the skin varies in different sites and every individual. He attributes the quicker reaction of children to the ultra-violet rays to the relative thinness and softness of their skin allowing a greater intensity of the incident radiation to reach the cutis vera. The liberation of Ca and P-ions in the plasma would, according to Dr Iacchia, explain the beneficial effects of the rays in rickets, and would be in keeping with the work of Bonino, who finds that these elements are more easily dissociated in human than in cows' milk. Such theorising does not carry us very far, and the interest of the paper to medical men lies in a description of a method of treatment termed by the author "auto-batterio-proteino-terapia," which consists in the subcutaneous injection of pus, or other infective material, rendered sterile by irradiation with a mercury-vapour lamp. In addition to pus from wounds, carbuncles, and the like Dr Iacchia has used sputum from cases of tuberculosis, pneumonia, &c., and infected urine from cases of pyelitis and cystitis. Ordinary pus is emulsified with distilled water, exposed to ultra-violet rays for an adequate time and then injected; sputum is dried on a glass slide as a thin film, irradiated, scraped off, and emulsified as for pus; urine is centrifuged and the débris washed several times to free it from soluble salts before injection. No control of the number of organisms is considered necessary, and, apparently, no severe reactions have followed this form of treatment in Dr Iacchia's hands. He publishes many illustrative cases and declares that, after 20 years of general practice, he is satisfied that this treatment is far better than any recognised form of vaccine or foreign protein-therapy. The results claimed may encourage further work on autogenous vaccines sterilised by ultra-violet rays.

THE SYNTHALIN TREATMENT OF DIABETES MELLITUS

As a result of their work on the chemistry of guanidin, E. Frank and Heyn prepared a series of alkyl derivatives with a long CH_2 chain, and later, in conjunction with M. Nothmann and Wagner, found that the derivative known as synthalin has an action similar to that of insulin when given to rabbits and dogs with pancreatic diabetes. Some account of the results of treating human diabetics with this derivative has already appeared in The Lancet,[1] and further details have now been published in the *Deutsche Medizinische Wochenschrift* for Dec. 3rd and 10th. Frank and Heyn found that synthalin is 100 times as effective as guanidin and that the administration of 3 mg. per kg. body-weight causes in a fasting rabbit hypoglycæmic symptoms which are immediately relieved by glucose. In synthalin the toxic effects which guanidin produces have been so far diminished that no hyperexcitability of the nervous system is noted, and when the drug is administered to man it is necessary to guard against the tendency to vomiting, lethargy, and anorexia which is a feature of guanidin poisoning in cats. It was found that a dose of 4 mg. per kg. of body-weight was fatal to dogs of 6 kg. within three or four days, but if the same dose was spread over a period of two days and then given again after an interval of one or two days the drug was well tolerated. In describing the results of treating human subjects Frank and Heyn point out that although formerly synthalin was given one hour before meals, it was afterwards found better to administer the dose in fluid at the beginning of a meal. It is taken by mouth and the usual single dose is from 20 to 25 mg., the largest quantity which they gave being 125 to 150 mg. over a period of four days. They tried to reduce a sugar excretion of 40 to 50 g. to a few grammes, and started with doses of 20 mg., increasing to 25 mg. when necessary; but they found that when a certain total has been reached a pause of 24 to 36 hours is necessary, as synthalin, though acting more slowly than insulin, has a greater cumulative effect and may cause gastric symptoms. If, however, the urine-sugar tends to rise during the 36-hour interval, an injection of insulin may be given or bread may be omitted from the morning and evening meals. Cases in which the disease is slight may be controlled by small doses at longer intervals. It is possible to transfer patients on insulin to synthalin treatment suddenly if the normal sugar excretion is known, but in severe cases it is advisable to make the change gradually. Excessive doses of the drug cause loss of appetite, epigastric oppression, vague pains and at times diarrhœa, and in the worst cases malaise, nausea, and vomiting. In the course of seven months Frank and Heyn have noticed no cumulative or slowly developing harmful effects, but they point out that there are cases where the treatment cannot be used, and they found that 2 or 3 per cent. of their own patients came into this category. The maximal effect may not be seen for a short time, during which there may be a gradually increasing malignant neoplasms, arise *de novo* and exhibit a considerable variation in type, it is difficult to form a rational conception of their ætiology on the basis of a multiplicity of viruses The conception of GYE is that the same virus is responsible for all the different types, but that the infective action of the virus is rendered specific for a certain type of cell by the presence in the extract of a substance produced by the tumour cells—the "specific factor" On this view the pathogenic action of the virus is determined by the presence in the extract of a substance varying with the tissue which has been infected

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[1] The Lancet, 1926, ii., 1288.

It has been questioned whether the filterable fowl tumours are due to a living virus, and various speculative alternative explanations have been suggested It is, of course true that an ultramicroscopic virus has not the same concrete reality as a bacterium which can be seen An ultramicroscopic virus is at present essentially a mental conception But, as W E GYE has pointed out in his recent Lloyd Roberts Memorial Lecture [2] the experimental evidence which has led to the formation of such a conception is exactly the same whether we are dealing with the filterable fowl tumours or foot-and-mouth disease, or, indeed, any other so-called virus disease If we question the existence of a virus in one disease, we might equally well question it in all the others The recent work on the various virus diseases, especially the brilliant work of LEVADITI and his collaborators, seems to indicate that the difference between virus diseases and bacterial diseases may be of a more fundamental nature than a mere difference in size of the infecting agent, and that the mechanism of virus infection may be different from that with which our study of bacterial infection has made us familiar Instead of segregating the filterable neoplasms of the fowl from all virus diseases it would seem more reasonable to apply the conception of the mechanism of virus infection, as advanced by GYE for the fowl tumours, to other virus diseases

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A DIPHTHERIA FILM

A STRIKING development in public health work is the decision by some life and sickness insurance companies, mainly American, that it is justifiable to use part of their funds in measures designed to improve public health One British company, at least, is now in the habit of making a substantial donation each year out of its available surplus towards some promising line of medical research Another company is paying attention to the possibilities of the cinematograph for public health propaganda, to which a lead has been given by Dr D M Connan's well-known work in Bermondsey, and by the inclusion in the "Bibliography of Industrial Hygiene," issued at Geneva, of a list of cinema films dealing with the health of the community A week or two ago a film entitled "Risk of Diphtheria banished" was shown by the Mutual Property Insurance Company at a gathering in London attended by medical officers of health and others The film displays the record of a Boston family During a violent wave of diphtheria three unprotected children suffered severe attacks, while one immunised sister remained completely well, though virulent diphtheria bacilli were found in her throat Dr Bela Schick is seen inoculating children, and the details of testing and immunisation are shown The film on the whole was successful, though a boy with severe laryngeal paralysis would not often in English practice be allowed in the semi-upright position Little objection could be taken to the general tone of the text, in which grave exaggeration is avoided No suggestion is made at any stage of forcing compulsory immunisation on the public The film, the whole cost of which was borne by the insurance companies concerned, will be loaned free of cost to medical officers of health and responsible health authorities for public exhibition

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[2] THE LANCET, 1926, ii, p 989

Annotations.

"Ne quid nimis"

THE PATHOLOGY OF EPIDEMIC ENCEPHALITIS

IN spite of the vast amount of research done since 1919, when C von Economo first described epidemic encephalitis, the problem of its causation has not yet been solved The histopathology has been thoroughly studied by numerous observers, and the anatomical changes in the central nervous system have been fully described and recorded, but the causative agent has so far escaped identification, although new facts concerning its biology are noted from time to time The distressing mental manifestations of chronic epidemic encephalitis have been regarded as post-encephalitic—that is, as the result of tissue damage caused previously by the infection, and not as the result of slow but active multiplication of the virus itself W Freeman,[1] who studied an epidemic in Washington, D C, brings forward evidence to show that the causative agent persists long after the acute symptoms subside, and that the later manifestations of the disease are due to a true acute or chronic infective encephalitis He quotes as a parallel the persistence of the spirochæte of syphilis in the central nervous system for many years before it reveals its presence by the onset of general paralysis or tabes In the report on The Sheffield Outbreak of Epidemic Encephalitis in 1924,[2] recently annotated in THE LANCET,[3] the question of the relationship of the virus of herpes febrilis with that of encephalitis is again considered In 1920, C Levaditi and L Harvier first recorded the successful transmission to the rabbit of a virus from a fatal case of encephalitis This virus was carefully studied and found to be identical in all respects with the virus of herpes febrilis Other observers reported, in all, six further transmissions to the rabbit, using brain or cerebro-spinal fluid from human cases of encephalitis, and these viruses were also shown to be immunologically and histologically similar to that of herpes Levaditi therefore suggested that the causal agent of epidemic encephalitis was identical with that of febrile herpes, except that the virus of encephalitis had a greater affinity for the central nervous system than that of herpes Doubt has been thrown on this view by several workers, because the few successful transmissions we have mentioned were the only ones recorded after very numerous attempts had been made to produce the disease experimentally Furthermore, the virus of herpes is very easily transmitted to the rabbit by corneal or dermal scarification, or by intracerebral injection of herpes material, and it seems doubtful if these few successful experiments could justify the conclusion that the virus of herpes is the causative agent of encephalitis Moreover, the isolation by S Flexner of an identical virus from the cerebro-spinal fluid, taken from a case of neurosyphilis with no evidence of epidemic encephalitis, casts still further doubt on Levaditi's contention In the recent outbreak in Sheffield, numerous attempts were made to transmit the virus of epidemic encephalitis to rabbits and mice from human material, and also to try to demonstrate the presence of its toxin All these attempts were negative, and the production of experimental encephalitis was not accomplished Parallel work done by J R Perdrau, and described in the index of the Report tends, however, to support Levaditi's contention Perdrau found that the brains of immune animals in the fresh state did not neutralise the virus of herpes in vitro, but after being kept a week or two in 50 per cent glycerine in saline, disease. This typhus-like fever was confined almost entirely to those who lived on mouse-ridden farms, or dealt with mouse-infested grain. Wheatland concluded that it was probably transmitted by some ectoparasite of the mouse. Fletcher and Lesslar's original observations on non-contagious typhus, and their careful review of the literature, will now, it is hoped, meet with the reward such thorough work deserves—a sharper look-out in the tropics for continued fever with exanthem (the rash, they note, is very easily missed in dark skins), and a quickened interest in its ætiology.

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[1] Freeman, Walter Jour Amer Med Assoc, Nov 13th, 1926, p 1601

[2] Medical Research Council Special Report Series No 108 The Sheffield Outbreak of Epidemic Encephalitis in 1924 H M Stationery Office, 1926 1s 9d

[3] THE LANCET, 1926, ii, 1123

MENTAL HYGIENE AND MIGRATION

THE United States of America are unique in the enormous number of foreigners who desire to enter the country; during the first 22 years of this century the tale of immigrants was nearly 18,000,000. Thus the Government has to face in an acute form the economic fact that the more the newcomers to any community the greater the number who will become a charge on the public treasury. The department most interested in immigration is, naturally, the Public Health Service, for it has to bear the burden not only of caring for those immigrants who, unable to adapt themselves to their new environment, become mentally or physically ill, but also of many of the evil results of their presence among the existing population. Since 1891 it has been required by law to examine the physical and mental condition of arriving aliens, and its opinions carry great weight in shaping the policy of the Federal Government. In 1922 the Service began an exhaustive research into the relationship between the migration of peoples and mental health, and the results of their preliminary inquiries are set out in a pamphlet by Dr. Walter L. Treadway,[1] who has had many years' practical experience as a psychiatrist.

In order to study foreign immigration from the standpoint of mental health, Dr. Treadway fully realises that it is necessary to know the methods adopted by communities to relieve distress. These methods, though they evolve with time, are always deeply rooted in tradition and custom. He therefore traces the history of public relief from its beginnings in mediæval England and Europe, through its development in the early American settlements, to its present-day forms in the States. In successive chapters he outlines the growth of workhouses, prisons, and reformatories, and the evolution of institutions for the care of the insane and the mentally deficient, and discusses the early treatment and prevention of mental disorder. In "Glimpses of European Ethnogeny" he surveys the exceedingly complex history of migrations in Europe, with the consequent intermingling of language, folk-lore, and customs, and describes Dr. D. G. Brinton's classification of races, on which is based that adopted by the Immigration Service in 1907. After this comes a detailed survey of immigration during the last ten decades and of the evolution of immigration laws. In considering the psychopathology of racial groups he agrees with Kirby that the Celtic stocks are more prone than any other to develop intoxication psychoses, the Irish ranking first in alcoholic disorders. The Malayic stock seem more liable to develop traumatic conditions, sharing with the Anglo-Americans the unenviable distinction of being more likely to be sent to mental hospitals when not actually insane than any other racial groups. Syphilitic brain disease is least of all in the Anglo-American, while ranking high among Indio-Eranic, Simitic, Negritic, Lettic, Finnic, and Chaldaic stocks. The Teutons and Celts seem to specialise in mental disorders due to senile and cerebral arterial changes, while Tartaric and Hellenic peoples head the list for disorders associated with faulty mental adjustment. Mental disease, when it occurs, is most often benign among Malayic, Anglo-American, Chaldaic, and Simitic immigrants, and the Anglo-American, Tartaric, and American-Indian rank highest for those disorders due to abnormal personal make-up. Mexican, Irish, and German are the three races most often debarred for mental disorder at the immigrant examination.

The difficulties are great of forming an adequate psychiatric opinion on the scanty data afforded by a ship surgeon's report and an interview with the alien who is asserting his right to enter the country, supported by his friends and relations. These difficulties are the burden of the last three chapters of the report. The onus of proof is thrown on the doctor, but he is aided by the enormous mental stress involved in the examination on which the immigrant's fate hangs. The under-average and unstable generally arouse suspicion in the preliminary inquiry, and are put back for further test. Few are ever certified without three complete examinations, and any alien debarred by a board of special inquiry has the right of appeal. A formidable machine, largely sentimental in its origin, is set in motion to stay deportation and land the excludable alien, and subterfuges are often employed. Mentally disabled aliens may land on filing a bond providing against their becoming public charges, and the war period produced a large crop of temporary landings that have become permanent. As Dr. Treadway says, a method has yet to be devised whereby the doubtful mentally disordered immigrant or the potential "misfit" will be prevented from entering America. The need for it is shown by the high proportion of mental disease among foreign-born persons living in the United States. Transport companies could obtain sufficient data to enable them to refuse passage to such aliens as are most likely to become public charges or to be sent back at the expense of the company which brought them. The Immigration Act of 1924, with its penalties for the introduction of aliens suffering from frank disease, affords a starting-point. Dr. Treadway points out that the cost of an adequate examination service would not amount to the expense the companies now incur in caring for detained and deported aliens. He recommends that legislation should include a clause binding the companies to support all aliens who become a charge on the public within five years of their landing, including repatriation and the provision of an attendant when necessary. Such an Act should certainly deter shipping companies from transporting aliens whose mental stability is reasonably in doubt.

CHEMISTRY OF CARDIAC CONTRACTION

AN extract of the right auricle of the dog's heart exerts a stimulating effect on the isolated heart muscle of the rabbit, increasing the amplitude of the muscular contractions, accelerating the rhythm, and even initiating contraction in muscle in a condition of standstill. This was shown by J. Demoor in 1923.[1] More recently[2] the same investigator has made alcoholic extracts of different parts of the heart of the rabbit and tested their relative capabilities in stimulating to increased mechanical response the isolated auricles of the same species. Extracts of the sino-auricular nodal tissue, of the right auricular muscle, and of the left auricular muscle, were investigated in this manner. The isolated right auricle of the rabbit beats rhythmically in a bath of oxygenated Locke's solution, and it was found that the addition of the extract of nodal tissue, and to a smaller extent that of right auricular muscle, exerted definitely positive inotropic and chronotropic influences on the auricular beats. An extract of left auricular muscle was without action. The isolated left auricle of the rabbit shows infrequent irregular contractions when placed in oxygenated Locke's fluid, and it was found that the nodal tissue extract acted specifically on this tissue, converting the spasmodic irregular responses into those of apparently normal rhythmic tolerance, and it was found that the dose could be reduced or the carbohydrate intake increased without ill-effect Acetonuria and acidosis diminish as sugar begins to disappear from the urine, and a case is described in which, after doses of over 75 mg had been given, the acidosis was much lessened at the end of the second day, although it was necessary to starve the patient because of vomiting Synthalin was found to be of no greater value than insulin for diabetic gangrene, and insulin treatment is considered advisable where *an operation is necessary, a gradual* change to synthalin can be made afterwards On the other hand, some patients intolerant to insulin have been treated successfully with synthalin, and in certain cases in which a sugar-excretion of 100 g fell *only to 50 to 60 g* under the influence of insulin, the glycosuria was almost abolished by synthalin The fact that the action of this drug is not so rapid as that of insulin is sometimes advantageous, and in cases where large injections of insulin are impracticable *synthalin is preferable both from the point* of view of cost and simplicity On the other hand, Frank and Heyn point out that synthalin is unsatisfactory for the treatment of coma, as it works too slowly and toxic doses must be given in order to prevent a collapse of carbohydrate metabolism The drug, they say, is still a long way from being ideal, as it does not allow of the patient having a diet sufficiently generous as to be satisfying From the account given it is impossible to be at all sure that synthalin is of a similar constitution to insulin, and it seems that the new drug can only be of use in certain selected cases

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[1] U.S. Public Health Dept., P.H. Bulletin, No. 148, Mental Hygiene with Special Reference to the Migration of People. Government Printing Office, Washington, D.C. 25 cents.

[1] Comptes Rend. Soc. de Biol., lxxxviii., 631.
[2] Ibid., xci., 90, xciii., 814 and 1239.

TROPICAL TYPHUS

During the late war epidemic typhus occurred on an appalling scale in parts of Europe and Asia It is a disease which follows in the track of famine and destruction, and it is so contagious that in the days of Murchison few or none of the staff of fever hospitals escaped infection, whilst Osler records that during a period of 25 years in Ireland it caused the death of nearly *half the 1200 medical men attached* to institutions Typhus rarely occurs, however, in countries where the climate is hot all the year round, and so is little known to medical men in the tropics The more interest, therefore, attaches to careful observations[1] recently made by Dr William Fletcher and Dr J E Lesslar, who have recognised in the Malay States a continued fever with exanthem, which they have named Tropical Typhus, and which, they believe, extends far beyond the limits of the Malay Peninsula Tropical typhus, as they describe it, differs essentially from the great epidemic disease, the symptoms are the same, and there is a positive Weil-Felix reaction in both, but the epidemiological features are entirely *different It has a very low* infectivity and mortality, patients may remain at home without infecting their families, and it is unusual for more than one person in the same household to have the disease Fletcher and Lesslar have noted many records of outbreaks of mild, non-contagious typhus in different parts of the world where epidemic typhus does not occur—notably Brill's disease (1898) in New York, where it is rarely fatal and never contagious A similar type of mild non-contagious typhus has been described by Yersin (1906) and Vassal (1908) in Indo-China, Smithson (1910) in Queensland, Conor and Bruch (1910) in Tunis, MacNaught (1911) in South Africa, McKechnie (1913) and Megaw (1921) in Kumaon district of Himalayas, Maxy and Havers (1922) in Alabama, Hone (1923) in Adelaide, Sinclair and Maxy (1925) in Rio Grande Valley, Clearkin (1925) and Anderson (1925) in East Africa and Nairobi, and Megaw, Shettle, and Roy (1925) in Central India In none of these outbreaks could careful observation implicate lice as the vectors, in some of them a tick appears to have been possibly to blame They have been grouped together among the typhus fevers by Megaw, but he separates them from the far more severe group of louse-typhus (*exanthematicus*), tick-typhus (Rocky Mountain fever), and mite-typhus (tsutsugamushi) The first and milder group comprises Fletcher and Lesslar's tropical typhus—one disease under many names in many countries In the Malay cases lice could not have been the vectors, infection with the virus was connected in some way with open uncultivated grazing land, and no lesions, such as those caused by mites in tsutsugamushi, could be detected in the skin of either European or Asiatic patients It appears probable that in Malayan typhus the vector is a tick, and Fletcher and Lesslar appeal for the help of entomologists in solving the riddle of the ætiology of tropical typhus

During the late war Weil and Felix (1915) cultivated from the urine of a typhus patient, in Constantinople, an organism of the *proteus* group which was agglutinated by the man's own blood, and also by the blood of other persons suffering from typhus They employed this organism in diagnosis, and called it X 2 Later they found that a similar bacillus, X 19, was agglutinated in higher dilutions than X 2 This strain, X 19, is that now employed in the Weil-Felix reaction, which is regarded by all competent *authorities as a specific test for typhus* fever Fletcher and Lesslar stress the importance of this reaction in the diagnosis of tropical typhus In *some of the outbreaks of mild non-contagious typhus*, noted above this reaction was reported as positive, in others it was negative In the Malayan cases it was always positive They considered these contradictory results as probably due to the use of different strain of *B proteus* in different parts of the world, and accordingly they obtained strains from colleagues in India, Sumatra, and England for cultivation and comparison In fact, the records of the culture characters of the *B proteus* strains used by the several workers do not tally, and show plainly that the respective strains could not be each the same X 19 *Their investigation*[2] *shows that the diversity of strains which pass under the name of B proteus* X19 makes it imperative to carry out careful control tests when working with an unknown culture It is unjustifiable to conclude that a patient is not suffering from typhus because his blood fails to agglutinate an unproven culture If the Weil-Felix reaction be positive, the result can easily be checked by the testing of healthy controls A serum dilution of 1-200 is the limit, they consider, above which agglutination gives positive evidence of typhus They record the important observation that there were two serum-groups of Malayan cases one group gave positive agglutination only with the anindologenic (Kingsbury) strain of X 19, and the other group gave positive agglutination only with *the indologenic* strain of X 19 from the National Collection The two groups appear to be equally common, and show hardly any difference in course and symptoms Neither group is contagious nor spread by lice Attempts to infect guinea-pigs failed, probably because the blood of the patients was not obtained *at any early stage* Dr Andrew Balfour had drawn their attention to the report of F T Wheatland[3] on an outbreak of non-contagious typhus-like fever at Toowoomba, Queensland *This disease* very closely resembled Malayan tropical typhus in its 12 or 14 days' fever, severe headache, macular rash (like that of typhoid, but more profuse), defervescence by quick lysis or crisis, and mortality of 2 per cent It was not carried by lice, and the Weil-Felix reaction was invariably positive There had been a plague of mice on the farms in the Toowoomba district, and *when the human disease* appeared these rodents were dying in great numbers The farmers linked these phenomena, and called the illness mouse-conclusion—namely, that histamine-like bodies are liberated locally The latency of reaction in this type of cutaneous stimulation is explained by the assumption that whereas in freezing, burning, or "stroking" (in a case of urticaria factitia) the cells are suddenly stimulated or damaged, the effects of ultra-violet irradiation are gradual and continuous and the liberation of histamine-like bodies is probably slow and continuous likewise In the fourth article Lewis and Grant discuss the anaphylactic skin reaction and succeed in shedding new light upon some of its features Their experiments were all carried out on a subject susceptible to fish (herring) who was found to be 170 times more suceptible to extract of fish than to histamine (1 in 3000), to which his response appeared to be normal From 6 lb of herring a substance resembling nucleic acid was eventually isolated, and with this substance the same anaphylactic phenomena could be obtained It is suggested as a result of this investigation that "the anaphylactic poison acts on the skin by liberating in it a histamine-like substance" The final article in the series is by Ronald Hare, and is an independent investigation on the same lines as the others above, of the vascular reactions of the susceptible skin to protein Working in the inoculation department of St Mary's Hospital, London, Hare compared the reaction to histamine and to specific proteins in two subjects susceptible to horse-serum and one susceptible to pollen The work seems to have been carefully done; his conclusions confirm the work of Lewis and his colleagues and go to show that a specific protein in a susceptible subject induces the production of histamine-like bodies to which the observed phenomena—local capillary dilatation, increased permeability, and reflex dilatation of neighbouring arterioles —are due These five papers, as will be obvious, contain information and opinions of great interest both to the dermatologist and the physician

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[1] Tropical Typhus Bulletins *from the Institute* for Medical Research, Kuala Lumpur, Federated Malay States, No 2, 1925

[2] William Fletcher and J E Lesslar The Weil Felix Reaction in Sporadic Typhus Bulletins from the Institute for *Medical Research*, Kuala Lumpur F M S, No 1 1926

[3] Medical Journal of Australia, March 6th, 1926

SMALL-POX IN THE NORTH

THERE is no abatement in the epidemic of mild small-pox in the North of England, the number of cases notified from the county of Durham during the last few weeks averaging about 250, 27 different sanitary districts being involved

At the request of the chairman of the North-East Durham Joint Hospital Board and of medical officers of isolation hospitals in that board's area, a conference was called last week by Dr T Eustace Hill at the Shire Hall, Durham, to consider the epidemic and the best means for dealing with it It was agreed that the existing accommodation for small-pox in the county of Durham is utterly inadequate to deal effectively with the present epidemic, and that so long as a large proportion of the county is unprotected by vaccination it was almost impossible to control the spread of the disease, owing to the mildness of the cases, which resulted in medical advice not being sought early, the occasional non-recognition of the disease by the practitioner, and the indifference of the community to its spread Neglect of vaccination, it was pointed out, was incurring an enormous expense on the county, the treatment and isolation of cases costing the local authorities alone well over £1000 a week, and the interference with trade was serious The following resolutions were adopted —

That, in the opinion of this conference, the present epidemic of small-pox would not have occurred if the stringency of the Vaccination Acts had not been weakened, and that prompt vaccination or revaccination of susceptible persons is of the utmost importance if the present epidemic of small pox is to be brought under early control, and that if such vaccination or revaccination was secured, small-pox in the county would be stamped out within three months

That, in the opinion of this conference, hospital authorities of districts where the available accommodation is inadequate for the prompt isolation of all cases of small-pox, should utilise, as a temporary measure, their ordinary isolation hospitals for the treatment of small-pox, where such hospitals are suitably situated for the purpose, and make arrangements with adjoining sanitary authorities for the treatment of their ordinary infectious cases in the adjoining hospitals a pooling arrangement being instituted both as regards the isolation of cases of small-pox and cases of ordinary infectious diseases

That if in any district there is available accommodation for small-pox cases in convenient empty buildings, arrangements should be promptly made for the use of these buildings for the isolation of small-pox cases, and that local hospital authorities should also consider the advisability of at once erecting temporary hospital accommodation to enable them promptly to isolate all cases occurring

That the medical officer of health for each sanitary district should communicate with every medical practitioner in his district, calling his attention to the urgent importance of keeping a careful look-out for all suspicious cases of rash and of at once acquainting the medical officer of health of such cases and that a copy of the monograph of Dr McConnel Wanklyn, entitled "The Accurate Diagnosis of Small-pox," should be issued by the medical officer of health of each sanitary district to every medical practitioner practising in that district

The conference concluded by urging upon the Ministry of Health the importance of amending the Vaccination Acts with the object of making vaccination more general and efficient, as vaccination affords the quickest, most scientific, and most economic means of preventing and arresting outbreaks of small-pox

CIRCUMCISION AND CARCINOMA

UNIVERSAL circumcision has many advocates, but they seldom make use of a rather impressive line of argument which has lately been put forward by Dr A L Wolbarst, of New York Dr. Wolbarst thinks it probable that removal of the foreskin of all infant boys would prevent at least 2 per cent of cancer in the male, and brings authoritative statements and interesting figures to support his reasoning "All writers on penile cancer are agreed," he says, "that phimosis constitutes the predominant ætiologic factor in the production of penile cancer" It not only provides the soil from which the growth may spring, but also furnishes and retains the irritating secretions which may call it into being Although he recognises that urethral discharges, syphilitic lesions, polypoid vegetations, ulcers, and trauma may be the starting-point of malignant disease, he regards phimosis as mainly to blame for 85 per cent of cases of cancer of the penis Practically all male children, he points out, are born with a phimosis, and the condition often persists throughout life Everyone knows that even where the foreskin is easily retracted, it is hard to prevent accumulation of urine and smegma, which may set up chronic irritation, and Dr Wolbarst is unimpressed with the suggestion that carcinoma never develops where the foreskin is freely movable, since benign precancerous lesions occur on the foreskin whether it is retractible or not The risk of developing penile cancer is by no means inconsiderable Although uncommon compared with some other varieties of carcinoma it nevertheless comes second in frequency, according to Dr Wolbarst, amongst cutaneous cancers, and is generally said to account for between 2 and 3 per cent of all malignant tumours in the male Although its prevalence has been estimated by some observers at only 1 per cent, he states that the consensus of opinion, as represented by the most recent literature, is that 2 per cent is not too high an assessment If it could be shown that universal circumcision would remove this cause of death and disability there would be an excellent case for adopting it as a prophylactic measure, for although it is conceivable that local irritation does nothing more than determine the site of an inevitable cancer, it is reasonable in the light of present knowledge to make such local irritation as infrequent as possible As circumcision is practised by large communities it should be easy to ascertain whether it does prove a complete safeguard against penile cancer Unfortunately, it is not very easy to collect figures from the official mortality statistics in this country because they give no particulars about religious belief, but Dr Wolbarst says that "students of cancer are agreed that penis cancer rarely if ever has been recorded among activity Prof L Haberlandt, in a series of five papers in the *Zeitschrift fur Biologie* and *Pfluger's Archiv*, has recorded his independent observations on similar experimental lines in the case of the frog We have already drawn attention to this work,[3] and it will be remembered that Ringer's fluid in which the sinus tissue has been beating for some time becomes activated in the sense that the fluid will cause an increased amplitude of contraction and an increased rate of contraction when brought into contact with the frog's isolated ventricle perfused by Straub's method The fluid was inactive in those cases in which the contractions of the sinus tissue were feeble or entirely absent Further, contracting auricular tissue was impotent to activate the fluid in which it was contracting, as was also the rhythmically stimulated tip of the ventricle The production of metabolites, therefore, could not be invoked as the cause of the phenomenon Furthermore, the active substance is produced by the sinus after the addition of ergotamine to the bath, and this fact makes the supposition that the effect observed might be due to the liberation of Loewi's "accelerating substance" improbable Positive results were also obtained in the case of the contracting ventricular base, so that the production of this substance seems to be intimately connected with the presence of Purkinje tissue Haberlandt has made some observations on the chemical nature of this "automatic stuff", he finds it to be soluble in alcohol, dialysable, and insoluble in ether He has obtained positive results in about 66 per cent of the experiments in which the "sinus-basis Ringer" was used and in about 50 per cent of those experiments in which alcoholic extracts of the nodal tissue were employed This fact, taken into consideration along with the independent observations of Demoor on the mammalian heart referred to above, makes it desirable that further work should be done along the same lines Worthy of special study would be the comparative effects of alcoholic extracts of various parts of the cardiac musculature on the rate and on the diastolic volume of the isolated mammalian heart beating under rigidly controlled conditions

THE M O H AND HIS AUTHORITY

The medical practitioner is concerned in local government not only as a ratepayer but on account of the steady encroachment of municipal operations upon the field of his own activities It is therefore worth his while to take every opportunity of examining how the work of these bodies is done, and in Mr. E D Simon's book[4] he will find it clearly and frankly stated Mr Simon, having been Lord Mayor of Manchester and a Member of the House of Commons, writes with authority on the management of public affairs and, breathing as he does the spirit of divine discontent, his account of a council's work is anything but dry It must not be assumed that his dissatisfaction leads to wholesale condemnation of local government, on the contrary, the council receives his blessing for the quality of work it manages to do, hampered by legislative restrictions, party strife, trade interests, and confusion of tutored and untutored counsel He points to weaknesses in administrative organisation, lack of coordination between committees (which really means between the departments of a corporation) and the absence of any official or group of councillors whose main function would be to foster and ensure the beautification of a city and the enlightenment of its people He compares our local government service with the civil service and with the German system to the disadvantage of the former—perhaps because his knowledge of the others is less intimate His experience as chairman of the Housing Committee lends special importance to the chapter on house-building by local authorities Of the many debatable points raised in this provocative book we join issue with Mr Simon on his contention that a medical man is usually a bad administrative officer and that, in order that a medical officer of health may escape becoming too rusty on the medical side to supervise the medical work of his own department, he ought to be subordinated to a lay administrator of the best civil service type We see his point and sympathise with his objects, but the disadvantages of the method he suggests would outweigh the advantages On the whole, Mr Simon seems a little touched with the doctrine of the superman and also inclined to think that when difficulties exist any change would be an improvement His book will therefore appeal especially to the young, which is all in its favour But everybody interested in local government should read it

INJURY TO THE SKIN

A recent issue of *Heart*[1] contains five original papers bearing on the mechanism by which the skin reacts to stimuli The first of these summarises the work of Sir Thomas Lewis and R T Grant on the reaction of cutaneous capillaries to the injection of histamine, and goes on to show that if the skin be so injured that œdema or erythema are produced, its vessels become refractory—for a time at least—to similar or allied stimuli, which in control areas will still produce definite and specific vascular effects Good grounds are given for postulating a mechanism of cutaneous defence in which the local liberation of histamine, or some similar substance, plays a vital part Lewis and Grant regard the refractory stage thus induced as a phenomenon of the cutaneous vessels rather than as an attribute of the epidermal cell, it cannot, therefore, be compared with the mechanism of muscle-cell fatigue In the same article Lewis also reports on his study of the actions of heat, cold, ultra-violet rays, adrenalin, and pituitrin, on areas which have previously been rendered refractory by histamine He found that none of these agents altered the so-called histamine flush until the refractory stage had passed off Applying the available facts to the study of pathological conditions such as the reticular configuration of erythema ab igne on the shins and the production of telangiectases from old X ray burns, he claims that these vascular abnormalities originate in a prolonged phase of "refractoriness of vascular tissue" In the succeeding article Lewis and Y Zotterman, of Stockholm, record their observations on a case of annular œdema secondary to infective endocarditis and explain the configuration of the eruption on the same basis A nodule arising round a presumed embolic focus was seen to spread concentrically outwards, and as it spread the centre of the raised circular erythematous patch would clear, thus giving rise to an annular figure In this involuted central area the refractoriness, induced by the virus and giving rise to the phenomenon of flushing and œdema might be considered to have passed away, but it was still present at the periphery and would remain there until the ring ceased to enlarge—i e., until the virus had been completely diluted or neutralised This interesting conception is supported by the behaviour of two advancing refractory rings when they meet It was seen—and it is, of course, a recognised fact—that these rings never pass through each other, the advance of both peripheries is suddenly checked and a variety of gyrate and polycyclic figures result The substance of this new and important conception can be summarised in the authors' own words "All forms of acute or relatively acute local œdema of the skin are due to injury of that skin, the injury leading to a reaction of the cells of the skin, whereby histamine-like substances are liberated To these substances the vascular reaction, vasodilatation and increased permeability are directly due" The same workers are responsible for the third article in this series, which is devoted to the mechanism of the skin reaction to ultra-violet rays and leads to the same

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[3] The Lancet, 1926, ii, 973

[4] A City Council from Within By E D Simon, M A, M I C E, M I M E, ex-Lord Mayor of Manchester London Longmans, Green and Co, Ltd 1926 Pp 246 7s 6d

[1] Heart, vol xii, Nos 2 and 3

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CCIV.—TREATMENT OF PATIENTS WITH HIGH BLOOD PRESSURE

There is more than a verbal difference between the treatment of high blood pressure itself and of patients with a raised blood pressure. High blood pressure has become a fashionable ailment, sometimes even an obsession, among the public, so that some people go about constantly speaking and, therefore, probably thinking continually of their "blood pressure," and ascribing to its evil influence symptoms really due to other factors. Further, the mental worry induced by knowledge of the possible results of hyperpiesia raises their blood pressure, and hence a vicious circle results, which demands treatment of the patient by sensible optimistic encouragement and bromides. High blood pressure is a manifestation of some underlying disorder—metabolic, renal, dietetic, toxæmic, infective, or psychological—and, though it may be reasonably regarded as responsible for subsequent arterio-sclerosis, renal fibrosis, and cardiac failure, many, if not most, of the symptoms found in persons with abnormally raised blood pressure, and in common usage regarded as due to it, can be better explained as either concomitant effects of the underlying cause or of the resulting or complicating arterio-sclerosis, renal or cardiac disease (*vide* The Lancet, 1926, ii., 1203). It is far more important to treat the underlying conditions or causes just mentioned than to concentrate on reducing the height of the blood pressure, which to some extent is a compensatory mechanism, for to bring it down rapidly and considerably may only make the patient, if, indeed, he was one before, worse. In 1901 Osler published a paper with the wisely paradoxical title, the Advantages of a Trace of Albumen and a few Tube Casts in the Urine of Men over Fifty Years of Age, and in 1912 he wrote on High Blood Pressure, its Associations, Advantages, and Disadvantages. Prophylactic measures in the *initial stages* are, of course, the most effective means of treatment.

Preventive or Prophylactic Measures

A periodic overhaul once or, perhaps, twice a year, such as the wise are accustomed to submit to at the dentist's hands, is an insurance against chronic disease, and is particularly desirable for those with a family history of high blood pressure and its effects. The discovery that the blood pressure is rising steadily or is considerably above the normal makes it essential to review the conditions of life so as to obviate causes connected with occupation, environment, diet, and infection. A hard-working and hard-living man of affairs must relax and reduce the stress and strain of his existence, he must learn to play, to take real holidays and frequent days or week-ends off, to follow hobbies, and avoid overeating, especially excess of meaty foods and their extracts; it is indeed a good, if not popular, rule to stop eating before the appetite is completely satisfied. Regular exercise within his powers should be encouraged. The moral is moderation in all things and freedom from strain of every kind, bodily and mental. To warn a person against worry is easy, but such advice is more helpful when backed up by a prescription for a bromide mixture to ensure some measure of philosophic calm in occasional emergencies. A search must be instituted for any chronic focus of infection in the teeth, tonsils, accessory nasal sinuses, gall-bladder and appendix, prostate, and indigestion and intestinal disorder should receive due attention. A tendency to obesity, especially about the menopause when endocrine deficiency may play a part, should be controlled.

The Management of Patients with fully established High Blood Pressure

The treatment of a patient with fully established high blood pressure depends on wise direction based on personal knowledge of the individual, which may give a clue to the important ætiological factor at work. Of the several possible factors more than one may be concerned, and a right decision on this problem, which may be far from easy, should be more within the power of the regular medical attendant, who knows all the circumstances, than of anyone else. The general principles outlined in the last paragraph hold good, especially encouragement of the patient and emphasis on the share that his cooperation plays in his future. Moderation should be the keynote of treatment, which, it may again be insisted, should be not so much of the supernormal blood pressure as of the patient's manner of life. The blood pressure should not be taken frequently, and it is usually advisable not to communicate the exact figure in millimetres of mercury, as it is easy to breed hypochondriasis by information that the pressure has gone up so many points. Although the treatment of nephritic patients with high blood pressure is different from that of simple hyperpiesia, it may be worth while to quote the perhaps exaggerated aphorism ascribed to the late Dr. W. H. Dickinson that "the great danger of chronic nephritis is that someone will find it out and try to treat it," for too energetic measures may do much harm by knocking down the patient at the same time as the blood pressure.

Diet can easily be too severely restricted; although an exclusive milk diet, as in Karell's cure (2–3 pints daily), may be useful for a few days, especially when the patient is in bed; the food supplied should be sufficient from a caloric point of view, and any risk of semi-starvation must be avoided. The general practice is to cut down the protein, and to allow some white meat, chicken, and fish, but to proscribe red meat, a distinction making little or no difference to the patient's condition. In the light of some American observations of an increased uric acid content of the blood in about 40 per cent of the cases of hyperpiesia, it would appear probable that a diminished protein and purin diet would be mainly of value in patients showing evidence of such disordered protein metabolism and of gout. Clear soups, meat extracts, sweetbread, strong tea and coffee, are best avoided; vegetables and fresh fruit are advisable, and may be useful in providing vitamins and in preventing constipation; but a free carbohydrate diet must be curtailed if it causes obesity or dyspepsia. On the whole, excess of food is probably rather more deleterious than the special quality of the constituents; the diet should be simple and sufficiently varied to avoid monotony. The statement that table salt raises the pressure is open to doubt, and in the absence of cardiorenal complications and dropsy a salt-free diet is more troublesome than useful. It may be noted that recently large doses of calcium or potassium chloride have been advocated as a means of lowering high blood pressure. A moderately restricted intake of water has usually been advocated on the ground that increased volume of the blood imposes more work on the heart and raises the blood pressure; on the other hand, free drinking of waters, as at spas, though not exclusively there, is sometimes followed by a notable fall of blood pressure; the difficulty is to determine beforehand what patients will react in this favourable manner. Although there is not any evidence that alcohol directly raises blood pressure, its generally depressing and degenerative influence on the tissues renders strict moderation highly advisable. Tobacco is usually regarded as undesirable for patients with high pressure, and it certainly causes an immediate though transient rise of blood pressure, followed by a fall to or below normal. But in confirmed smokers in health the blood pressure tends to be low, and as tobacco-smoking commonly has a soothing influence it would appear

Mohammedans and Jews, who practise circumcision in early life as a ritual measure." Among 3,000,000 Jews in the United States cases of penile cancer should be encountered from time to time if the 2 per cent rate of incidence holds good, yet although other forms of cancer are at least as common in Jews as in Gentiles, he says that the records of Jewish hospitals do not seem to mention cancer of the penis except as occurring in their non-Jewish patients Thus in two Jewish hospitals in New York not a single case of this disease is recorded amongst 958 consecutive cases of male cancer If Dr Wolbarst is right in his conclusion as to the comparative freedom of the circumcised, his argument for universal circumcision is a strong one If, on the other hand, he is misinformed about the rarity of penile cancer in Jews and Mohammedans it should be easy to prove him in error It is to be hoped, therefore, that practitioners will place on record any cases in which they have seen the condition in Jews or Gentiles circumcised in infancy

THE ROCKEFELLER FOUNDATION

A bald statement of the activities of the Rockefeller Foundation during the year 1925, for which the report has just been issued,[1] would consist of a long catalogue classified in just over 20 sections This in itself would not be without interest and certain items demand special notice, but what is perhaps more instructive is to observe the trend of policy of this organisation as indicated in the president's review Mr George E Vincent points out that the increase in the number and resources of privately endowed foundations—notably, but not exclusively, in the United States of America—raises pertinent questions as to the place of these agencies in the social order and their relation to the work of governments It is stated elsewhere in the report that 631 formal applications for aid had to be refused during the year 1925 "The types of assistance requested did not fall within the scope of its (the Foundation's) activities as determined by its present politics," for "the Foundation does not make gifts or loans to individuals, nor contribute to the building or maintenance of churches, hospitals (except as certain hospital features may be included in plans for medical education), and other local institutions, nor support campaigns to influence public opinion on social or political questions" The positive side to such negative statements of policy is furnished by the catalogue already mentioned, some of the details of which may now be chosen for comment In the field of public health where the private funds come into relation with the tasks of governments, the Foundation has adopted the policy of working only with and through governments Its International Health Board will lend a hand only on the invitation of an official agency, and it is kept constantly in the foreground that the task of protecting a community against disease must be accepted by a government as its own primary responsibility On these lines in 1925 official anti-hookworm measures involving the treatment of nearly 1½ million people were carried out and yellow fever has been practically eradicated from the Americas With regard to its interest in medical education the Foundation's policy is based on the fact that the backbone of any public health measure is formed by the medical profession, and hence the necessity of emphasising the "preventive idea" even in undergraduate days The dangers attached to this are, of course, realised, and in particular it is pointed out that if a curriculum is to be permeated with this "preventive idea," there must exist "a curriculum of the right sort to be permeated" Hence the support shown by the Foundation to medical schools in many lands, and the expenditure of approximately three million dollars in 1925 on this item alone Realising that "medicine, both curative and preventive, whether it be considered as science or art, quite obviously depends directly on psychology, biology, chemistry, and physics," the Foundation is supporting certain activities in connexion with mental hygiene and psychology, and is showing an interest in biology Here a special form of aid calls for separate notice, for the Foundation has granted 350,000 dollars to be spent over a ten-year period in support of the production of "a world memory for biology" which is the president's way of describing a huge abstracting enterprise to cover the estimated 40,000 articles dealing with biology in 5000 different journals each year In other fields the activity of the Foundation continues to show progress In China the Peking Union Medical College carried on as usual in 1925 despite the local distractions and the policy of transforming "the College gradually into a Chinese medical centre with a Chinese staff and ultimately a Chinese board of trustees in complete control" is being carried out effectively The nurse is also observed with interest by the Foundation, and the president's review contains a good summary of the difficulties now presenting themselves in the nursing profession where the attractions offered in the public health field are said, in America at any rate, to be luring the nurse from the smaller hospitals and from private work The Foundation stands aside in the controversy, devoting itself to the training of leaders in the nursing profession in different parts of the world This point alone could be expanded to demonstrate the policy of the Foundation in most of its work, but sufficient has been said to indicate how it is moving Its watchwords, in the language of its president, are "coöperation not rivalry, response not propaganda, economy not speculation, temporary aid not continued subsidy, official responsibility not usurpation of authority, a permanent gain not an ephemeral exploit"

The Services.

ROYAL ARMY MEDICAL CORPS

Maj W J E Bell and Capt T H Twigg, are secd for service under the Colonial Office

Capts G F Carr and B H C Lea-Wilson (Prov and remains secd) to be Majs

Capt P L C Carrier retires, receiving a gratuity

REGULAR ARMY RESERVE OF OFFICERS

The undermentioned Cols having attained the age limit of liability to recall, cease to belong to the Res of Off : O K Morgan, late R A M C and Hon Brig -Gen C G W. Hunter

TERRITORIAL ARMY

Maj O H Mavor (late R A M C, T A) to be Maj, supern for service with Med Unit, Glasgow Univ, Sen. Div, O T C

Lt H W M Williams resigns his commn

Lt J R. Wheeler (late R F A, Spec Res) to be Lt, supern for service with Med Unit, Belfast Univ , Sen Div, O T C

J H Strahan to be Lt , supern for service with Med. Unit, Belfast Univ , Sen Div , O T C

INDIAN MEDICAL SERVICES

Lt.-Col R F Baird officiates as Inspector-General of Civil Hospitals, United Provinces Lt -Col H H Broome, Principal, King Edward's Medical College, Lahore, to be a Member of the Governing Body of the Punjab State Medical Faculty, vice Khan Bahadur Syed Nazirhussain, resigned

DEATH IN THE SERVICES

Deputy Inspector-General Henry Manton Murray Sedgwick, R N , died at Southsea on Dec 23rd, aged 86 He entered the Royal Naval Service as assistant surgeon in 1863, and saw foreign service on the East Indies station During the Abyssinian war he was medical officer of the Naval Brigade (mentioned in dispatches, promoted to surgeon, and received the Abyssinian Medal) In 1882 he was fleet surgeon in H M S *Inflexible*, at the bombardment of Alexandria (Alexandria clasp, the Khedive bronze star, and the Order of the Medjidieh) He retired in 1892

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[1] The Rockefeller Foundation Annual Report, 1925 New York The Rockefeller Foundation

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCIV.—TREATMENT OF PATIENTS WITH HIGH BLOOD PRESSURE.

THERE is more than a verbal difference between the treatment of high blood pressure itself and of patients with a raised blood pressure High blood pressure has become a fashionable ailment, sometimes even an obsession among the public, so that some people go about constantly speaking and, therefore probably thinking continually of their "blood pressure," and ascribing to its evil influence symptoms really due to other factors Further, the mental worry induced by knowledge of the possible results of hyperpiesia raises their blood pressure, and hence a vicious circle results, which demands treatment of the patient by sensible optimistic encouragement and bromides High blood pressure is a manifestation of some underlying disorder—metabolic, renal, dietetic, toxæmic, infective, or psychological—and, though it may be reasonably regarded as responsible for subsequent arterio-sclerosis, renal fibrosis, and cardiac failure, many, if not most, of the symptoms found in persons with abnormally raised blood pressure, and in common usage regarded as due to it, can be better explained as either concomitant effects of the underlying cause or of the resulting or complicating arterio-sclerosis, renal or cardiac disease (*vide* THE LANCET. 1926, *ii.*, 1203) It is far more important to treat the underlying conditions or causes just mentioned than to concentrate on reducing the height of the blood pressure. which to some extent is a compensatory mechanism, for to bring it down rapidly and considerably may only make the patient, if, indeed, he was one before worse In 1901 Osler published a paper with the wisely paradoxical title, the Advantages of a Trace of Albumen and a few Tube Casts in the Urine of Men over Fifty Years of Age, and in 1912 he wrote on High Blood Pressure, its Associations, Advantages, and Disadvantages Prophylactic measures in the initial stages are, of course, the most effective means of treatment

Preventive or Prophylactic Measures

A periodic overhaul once or, perhaps, twice a year, such as the wise are accustomed to submit to at the dentist's hands, is an insurance against chronic disease, and is particularly desirable for those with a family history of high blood pressure and its effects The discovery that the blood pressure is rising steadily or is considerably above the normal makes it essential to review the conditions of life so as to obviate causes connected with occupation, environment, diet, and infection A hard-working and hard-living man of affairs must relax and reduce the stress and strain of his existence, he must learn to play, to take real holidays and frequent days or week-ends off to follow hobbies, and avoid overeating, especially excess of meaty foods and their extracts, it is indeed a good, if not popular, rule to stop eating before the appetite is completely satisfied. Regular exercise within his powers should be encouraged The moral is moderation in all things and freedom from strain of every kind, bodily and mental To warn a person against worry is easy, but such advice is more helpful when backed up by a prescription for a bromide mixture to ensure some measure of philosophic calm in occasional emergencies A search must be instituted for any chronic focus of infection in the teeth, tonsils, accessory nasal sinuses, gall-bladder and appendix, prostate and indigestion and intestinal disorder should receive due attention A tendency to obesity, especially about the menopause when endocrine deficiency may play a part, should be controlled

The Management of Patients with fully established High Blood Pressure

The treatment of a patient with fully established high blood pressure depends on wise direction based on personal knowledge of the individual, which may give a clue to the important ætiological factor at work. Of the several possible factors more than one may be concerned, and a right decision on this problem, which may be far from easy, should be more within the power of the regular medical attendant, who knows all the circumstances, than of anyone else. The general principles outlined in the last paragraph hold good, especially encouragement of the patient and emphasis on the share that his cooperation plays in his future Moderation should be the keynote of treatment, which it may again be insisted, should be not so much of the supernormal blood pressure as of the patient's manner of life The blood pressure should not be taken frequently. and it is usually advisable not to communicate the exact figure in millimetres of mercury. as it is easy to breed hypochondriasis by information that the pressure has gone up so many points Although the treatment of nephritic patients with high blood pressure is different from that of simple hyperpiesia, it may be worth while to quote the perhaps exaggerated aphorism ascribed to the late Dr W H Dickinson that "the great danger of chronic nephritis is that someone will find it out and try to treat it," for too energetic measures may do much harm by knocking down the patient at the same time as the blood pressure.

Diet can easily be too severely restricted, although an exclusive milk diet, as in Karell's cure (2–3 pints daily) may be useful for a few days, especially when the patient is in bed, the food supplied should be sufficient from a caloric point of view, and any risk of semi-starvation must be avoided The general practice is to cut down the protein, and to allow some white meat, chicken, and fish but to proscribe red meat, a distinction making little or no difference to the patient's condition In the light of some American observations of an increased uric acid content of the blood in about 40 per cent of the cases of hyperpiesia, it would appear probable that a diminished protein and purin diet would be mainly of value in patients showing evidence of such disordered protein metabolism and of gout. Clear soups, meat extracts, sweetbread, strong tea and coffee, are best avoided; vegetables and fresh fruit are advisable and may be useful in providing vitamins and in preventing constipation; but a free carbohydrate diet must be curtailed if it causes obesity or dyspepsia On the whole, excess of food is probably rather more deleterious than the special quality of the constituents; the diet should be simple and sufficiently varied to avoid monotony. The statement that table salt raises the pressure is open to doubt, and in the absence of cardiorenal complications and dropsy a salt-free diet is more troublesome than useful. It may be noted that recently large doses of calcium or potassium chloride have been advocated as a means of lowering high blood pressure A moderately restricted intake of water has usually been advocated on the ground that increased volume of the blood imposes more work on the heart and raises the blood pressure, on the other hand, free drinking of waters. as at spas, though not exclusively there, is sometimes followed by a notable fall of blood pressure, the difficulty is to determine beforehand what patients will react in this favourable manner Although there is not any evidence that alcohol directly raises blood pressure, its generally depressing and degenerative influence on the tissues renders strict moderation highly advisable Tobacco is usually regarded as undesirable for patients with high pressure and it certainly causes an immediate though transient rise of blood pressure, followed by a fall to or below normal. But in confirmed smokers in health the blood pressure tends to be low, and as tobacco-smoking commonly has a soothing influence it would appear unnecessary to deprive the patients of this solace unless they are conscious of any ill-effects, such as cardiac pain or irregularity

Rest and Exercise—High blood pressure is undoubtedly reduced by rest in bed, as, indeed, it normally is in the recumbent position, but this is a temporary result and with a return to ordinary life it resumes its previous character Still a full night's rest is always beneficial, and occasionally a whole day in bed does good. The heart may thereby be relieved of strain, but the underlying factors of the raised blood pressure are not likely to be influenced except, perhaps, psychologically Rest in bed may become necessary for subsequent myocardial failure, but this is another story Exercise of various kinds, especially in the fresh air, according to the patient's powers and never so extreme as to cause dyspnœa or other distress, is advisable both bodily and mentally Failing opportunity for exercise in the open, breathing and other forms of indoor exertion have their place, as has massage in certain circumstances

Baths—On *a priori* considerations hot baths would seem suitable, but their value has not escaped some criticism for they raise the systolic pressure slightly while lowering the diastolic pressure to a greater degree, and thus increase the work of the heart Cold baths are undesirable, as they raise the blood pressure Patients are often greatly improved and their pressures lowered by a visit to a spa where facilities for several forms of treatment freedom from worry and the psychological effect of change play a part Residence in a warm climate, a prescription more easy to give than to carry out, exerts a beneficial influence

High frequency currents lower the pressure for a time, *diathermy* is said to keep the pressure down much longer, so that eventually monthly treatments are sufficient to maintain a reduction permanently down to a level appropriate for the individual patient Ultra-violet rays are also stated to have a similar effect, in this method, as in diathermy, the mode of action is not certainly known, but Sir Thomas Lewis's work suggests that a histamine-like body is liberated from the damaged skin *Lumbar puncture* and *venesection* at once reduce the pressure for a short time, and may be useful in the emergencies of hyperpietic crises, but their effect is very transient

Drug treatment is the least important, and it is significant that so many have been advocated. Bromides are, on the whole, the most effective, and, of course, act by relieving mental strain and anxiety Of the vaso-dilators, mannitol nitrate and erythrol tetranitrate are stated to have a more prolonged effect than the commonly used trinitrin The effects of nitrites are fugitive only, but occasionally they relieve headache and insomnia Hippurates and guipsin have not come up to their initial reputation, and benzyl benzoate and extract of liver, the effect of which is said not to be due to histamine or choline, are on their trial Calomel either in minute (1-20th gr t d s) doses or in larger quantities (½ to 1 gr) once a week appears to benefit the patients Constipation should be prevented, but the intestinal antiseptics have been generally disappointing Iodides have been largely used, but they do not have any direct effect; it has been suggested that their action is indirect by stimulating the thyroid, but the disappointing effect of thyroid extract by the mouth does not render this explanation convincing Ovarian, or corpus luteum extract, has been recommended for the menopausal high blood pressure Drugs, such as aconite and antimony, which reduce blood pressure by depressing the heart, should not be used, but chloral in 5 gr doses is sometimes useful

HUMPHRY ROLLESTON, M D Camb,
F R C P Lond,
Regius Professor of Physic, University of Cambridge

Special Articles.

PRESERVATIVES AND COLOURING MATTER IN FOOD

THE NEW REGULATIONS

WHEN the Minister of Health made the Public Health (Preservatives, &c, in Food) Regulations on August 4th, 1925, he directed that they should not come into operation as a whole before Jan 1st, 1927, and that parts of them should be still further postponed Recently, on Dec 10th, he amended the Regulations, partly in points of substance and partly in respect of the dates of their operation, to which reference will be made presently It will be recalled that the Regulations of 1925 followed in the main the recommendations contained in the final report of the Departmental Committee (presided over by Sir H C Monro) appointed in July, 1923, to inquire into the use of preservatives and colouring matters in food

Prohibitions and Permissions

The Committee's principal conclusions were that preservatives should be prohibited in all articles of food or drink offered for sale, whether manufactured in this country or imported, but an exception was made in favour of specified proportions of sulphur dioxide and benzoic acid The Committee went on to say that the sale of any preparation as a food preservative should be declared illegal unless accompanied by a clear description of its composition and strength and unless the preparation was free from impurities and contained no more than 1/100th part of a grain of arsenic or 1/7th of a grain of lead to the pound It recommended that the use of a copper salt to colour peas or other vegetables should be prohibited and that the Ministry should issue a schedule of non-injurious colouring matters These recommendations were substantially followed in the 1925 Regulations, wherein will be found two important schedules The first of these contained in Part I a list of articles of food and drink which may contain preservative and specified the nature and proportion of the preservative in each case, and in Part II a list of the colouring matters which may not be added to articles of food, the second schedule dealt with the labelling of preservatives and articles of food containing preservative The Regulations define "preservative" as meaning "any substance which is capable of inhibiting, retarding, or arresting the process of fermentation, acidification, or other decomposition of food or of masking any of the evidences of putrefaction," but excluding common salt, saltpetre, sugars, acetic acid, or vinegar, alcohol or potable spirits, herbs, hop extract, spices, and essential oils used for flavouring purposes or any substance added to food by the process of curing known as smoking To this list of permitted substances a recent amendment has added glycerine Local authorities have the duty of enforcing the 1925 Regulations in so far as they relate to the sale of articles of food and preservatives, the Customs authorities are naturally concerned as to imported articles of food It will now be an offence to manufacture or sell any article of food which contains an unauthorised preservative or colouring matter It will also be an offence to violate the labelling requirements, though there are exceptions in favour of sales in restaurants and certain other cases Comment was made upon the permitted preservatives when the Regulations were first published some 15 months ago[1] The recent amendments have modified the permissive provisions in respect of fruit and fruit pulp of all kinds, jam, marmalade, and fruit jelly, and crystallised glacé or cured fruit (including candied peel) These items are in part reclassified, with a restatement of the maximum permitted proportion of sulphuric dioxide in each case.

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[1] THE LANCET, 1925, ii, 413

Dates of Operation

The Committee recommended, and the Minister of Health conceded, that manufacturers and importers should be allowed a period of grace to clear existing stocks. The Minister states that the previous postponement of operation has not succeeded in meeting the requirements of the parties concerned but he finds himself unable to grant any extension. He suggests that local authorities may consider it desirable to refrain from initiating prosecutions for a few months till stocks are cleared. This is an unfortunate and unconstitutional though possibly convenient course. Penal provisions should not be enacted and brought into force unless and until it is intended that they shall be executed. To give a local power of dispensation will lead to strange discriminations up and down the country. The Ministerial attitude is like that of the Ministry of Agriculture when the Milk and Dairies Order was lately attacked in the House of Lords. Lord Bledisloe's official defence in effect admitted that parts of the Order might be mistaken and extravagant, but said that local authorities would be given a departmental hint not to be too severe. This is the wrong way to legislate. Regulations should not be made more drastic than the circumstances require, nor should they operate until the moment is ripe. The actual dates of operation of the 1925 Regulations (as amended) are as follows: for bacon, ham, egg yolk, and articles of food containing preservative necessarily introduced by the use of preserved margarine in their preservation, July 1st 1927; for butter, cream, and articles of food containing preservative necessarily introduced by the use in their preparation of preserved bacon, ham, egg yolk or cream, Jan 1st, 1928; for articles of food containing preservative necessarily introduced by the use in their preparation of preserved butter, July 1st, 1928; for all other foods, Jan 1st, 1927. It may be added that the Stationery Office is conveniently reprinting the principal regulations of 1925 with the insertion of the recent amendments in the form in which they will now operate.

The Onus of Proof.

It remains to notice certain other matters in relation to the administration of the new law. The desired object is that the prohibitions and limitations in the Regulations should have binding effect in a court of law in proceedings under the Sale of Food and Drugs Acts. That is to say, it should be sufficient for the prosecution to prove that a preservative or colouring matter is present in an article of food in contravention of the Regulations; it should be possible to eliminate the usual conflict of expert evidence on the question whether the amount of such preservative or colouring matter so present is or is not injurious to health. It is doubtful how far this desirable result can be attained by mere Regulation without a fresh Act of Parliament. The Departmental Committee drew attention to an important difference in the burden of proof under the Sale of Food and Drugs Acts and under the Butter and Margarine Act of 1907. In the former case the person charged has to prove his absence of knowledge (in view of Sections 3 and 5 of the Sale of Food and Drugs Act, 1875), in the latter case the onus of proof that the offence is wilful lies on the prosecution. This difference should be adjusted by Parliament. Another point remarked by the Committee was the difficulty of bringing home an offence to the manufacturer. The retailer may escape, though an infringement of the law has been proved, because he is not to blame for the impurity or unwholesomeness of an article. The manufacturer who is responsible is brought within the law by Section 25 of the Sale of Food and Drugs Act, 1875, and Section 20 of the Act of 1899 which allow a defendant to plead that the goods were sold to him with a written warranty. But it has usually been found that the article has passed through so many hands and so much time has elapsed, that prosecution of the manufacturer is useless. As has already been mentioned, the 1925 Regulations penalise not only the sale but also the manufacture for sale, of articles of food which offend against the prohibition or limitation of preservatives and colouring matter. Much may be hoped of this improvement in the law.

PARIS.

(From our own Correspondents.)

Medical Secrecy

Medical secrecy has always been a source of controversy and this is growing steadily more acute because, with the socialisation of medicine, doctors are being asked for more and more certificates about their patients. It is suggested that the time has come to set up some sort of rule to define the medical man's position and Dr. Paul Gallois suggests that the Academie de Medecine should ask Parliament to incorporate statements in the law to the following effect: "Medical secrecy is part of a contract between the doctor and his patient, and the doctor cannot surrender his patient's confidence to any other person. The patient alone can release the doctor from his obligation to maintain secrecy, in which case, however, the doctor is not bound to speak. A doctor must not divulge information given by his patient, except in the form of a certificate, and such a certificate should be sent to the *patient*, who may use it if he wishes and thus takes the responsibility for the facts being made known. Secrecy is not limited to confidential information given by the patient, but extends to everything that the doctor is able to see, hear, or discover if revelation of it might be harmful or merely disagreeable to the patient; this applies even to cases in which the doctor has no wish to be damaging. Short of superior force a doctor must not in his dealings with any person represent two different interests and consequently fulfil two opposite functions. For example he cannot act, at one and the same time, as the doctor treating the case and as the doctor who is in charge of it in some official or expert capacity. He should also avoid treating simultaneously two people whose interests are at variance. If for the good of the community the State has need of medical information, it can obtain it by asking from the patient or his agents-at-law a certificate from the doctor in charge, and the State should also retain the services of medical men for purposes of inquiry where no adequate certificate is obtainable."

Fuso-spirochætosis

Dr. Paul Lafosse and Dr. Jacques Langle, of Vincennes, have reported on 53 cases of bronchitis in which the sputum contained large numbers of fusiform bacilli together with Vincent's spirochæte. These patients have a painful, paroxysmal, noisy cough followed by expectoration of variable quantity; in three cases the sputum had a stale smell—at one time even sickly. Hæmoptysis occurred only eight times and produced no general disturbance, the patients waking up from sleep to find the mouth full of blood. Constitutional symptoms were unusual and no fever was observed. Clinical examination showed only the common signs of bronchitis and slight congestion; X ray examination was nearly always negative, and tubercle bacilli were never found in the sputum, which, however, revealed in the 53 cases a symbiosis between the fusiform bacillus and the spirochæte. Treatment with arsenic always improved the condition at any rate for a time, and removed the association of bacillus and spirochæte. These features of the disease made it easy to correct the diagnosis of pulmonary tuberculosis which had been attached to many of the cases.

Insulin.

Desgrez, Rathery, and Froment, of Paris, classify diabetics treated by insulin in three groups: (1)

those in which insulin only does good so long as its administration is continued, the insulin acting as a substitutive remedy like thyroid extract in myxœdema, (2) those who react badly to insulin, probably because their condition is not determined solely by the pancreas, and (3) those in whom insulin appears to be actually curative, since their improvement continues even when doses are reduced or made less frequent. Without going so far as to speak of true cure, it seems that in the last group of cases there is functional recuperation—partial at any rate—of carbohydrate metabolism, though, of course, the patients have to be carefully watched for fear of relapse.

The Centenary of Laënnec

The ceremonies to celebrate the hundredth anniversary of Laennec's death began at Paris on Dec. 13th with a requiem mass at Notre-Dame, after which the delegates were received at the Académie de Médecine and the Hôtel de Ville. In the evening the President of the Republic attended an assembly at the Sorbonne, held under the presidency of M. Painlevé, Minister for War, and orations on various aspects of Laennec's work were delivered, after which the foreign delegates presented addresses to the President. The colleges and societies of Great Britain were represented by Sir StClair Thomson, Sir John Broadbent, Sir Edwin Bramwell, Sir Percival Hartley, and Prof. William Stirling. The evening's proceedings ended with a speech by M. Painlevé. On the following day visits were paid to the hospital where Laennec received instruction from Corvisart, to the house in rue de l'Abbé Grégoire where he last lived, and to the Carnavalet Museum. In the afternoon M. Herriot, Minister of Education, presided over a formal session of the Académie de Médecine, whilst on the following day there was a reception at the Hôpital Laennec and visits to the Leon Bourgeois Dispensary, and to the Hôpital Necker where Laennec was physician. At the Pasteur Institute Prof. A. Calmette gave an address on the prevention of tuberculosis since Laennec, and the three days' celebration closed with a banquet at the Palais d'Orsay.

Gabriel Petit, in collaboration with Panisset and Kfouri, has succeeded in overcoming the well-known resistance of the horse to tubercle by inoculating bacilli directly into the lung through the bronchi. To produce in the lungs of a horse—and in the lungs alone—tuberculous lesions of slow development and of the human clinical type, is to extend greatly the field of experimental work.

Tuberculous Infection of the Newborn.

Prof. A. Couvelaire during the past five years has had under observation 357 children born of tuberculous mothers and has found that the percentage of stillbirths (which, on the average, was 10.6) is considerably greater in cases where the maternal tuberculosis is severe. At the beginning of his investigations the death-rate during the first month of life was 33 per cent., but in the last series of 126 cases it had fallen to 7.2 per cent., thanks to improvement of conditions, the babies being reared in strict isolation from their mothers. This fact is evidence against the theory that most babies dying in the first month are congenitally infected. It is not less true, however, that certain cases of death from malnutrition, steadily progressive from birth, remain unexplained. Recent research has suggested that side by side with the very rare congenital infection which produces specific lesions there exists a commoner trans-placental transmission of the virus.[1]

At a meeting of the Académie de Médecine on Dec. 7th this question was generally discussed, and Prof. L. Bernard pointed out that the filterable forms of virus obtained by Couvelaire have not been proved the actual cause of tuberculosis in the fœtus. He pointed out that it is still very doubtful if there is such a thing as placental transmission of tuberculosis, and advised that a conservative attitude should be taken towards the problem so as to avoid creating false impressions in the public mind.

MEDICINE AND THE LAW

An Abortive Prosecution

On Dec. 22nd the stipendiary magistrate at Clerkenwell police-court dismissed a summons against Prof. E. B. Verney, of University College, for "unlawfully having in his possession a certain dog, to wit a small mongrel wolfhound, the property of Frederick Smythe, knowing such dog to have been stolen." No opportunity arose for Prof. Verney to make his reply to this charge, the magistrate dismissing the summons on the preliminary ground that there was no evidence of possession. Mr. Roland Oliver, K.C., who appeared for the defendant, protested vigorously against a society putting up a nominal prosecutor to attack Prof. Verney and the University College which carried on vivisection under a statutory licence. He described the proceedings as an abuse of the court, and asked for costs. The magistrate presumably agreed, for he awarded five guineas costs and stated that he did not think the prosecution should have been launched. He did not further enlarge upon the reasons for his decision; indeed, he disclaimed any intention of pronouncing upon the merits of the case. If, however, there are those who infer that an experienced and disinterested magistrate would regard the interposition of the society as evidence rather of a desire not to pretermit an opportunity for propaganda than of a fair and reasonable resort to legal process, their impression will probably not be removed by reading the report of the case published in another column (p. 50). It happened that the copy of the *Times* which contained an account of this abortive prosecution of a research worker by a body which had not prepared itself to prove the elements of its accusation, also contained an account of the valuable results achieved by medical research at Mill Hill in the direction of rendering dogs immune from distemper.

Medical Evidence of Insanity

In dismissing the appeal of Cecil Roodhouse, convicted at Leeds Assizes of the murder of his sister, the Court of Criminal Appeal on Dec. 20th placed the usual legal limitations upon the value of medical evidence of insanity. It had been argued on behalf of the appellant that, being defended under the Poor Prisoners Rules, he could not obtain expert evidence of his insanity, but that the opinion of the local doctors appeared to indicate epilepsy as well as adolescent insanity. Lord Hewart used the occasion to point out that the responsibility of deciding the question of insanity rests with judge and jury at the trial, not with the medical expert. "There are those who would let it rest with the opinion of a doctor, but at present the evidence of doctors is subject to the good judgment of the jury; we have not yet come to the time when a man can get off by getting a doctor to go into the witness-box." The rather notorious difference between what are called the legal and medical views of insanity was further illustrated by Lord Hewart's subsequent observations. "It has now been said that, had the judge at trial collected all the available evidence of possible insanity and put it cumulatively before the jury, the verdict would have been a different one. Probably it would; but then the judge would not have been doing his duty, because he is expected to put the case to the jury according to the proper practice of law." And so we see once again that in a given case the medical profession may be perfectly satisfied that it detects the presence of mental disease. Yet the legal profession—or, at any rate, the judges who express the official legal view—may tell the jury to reject all evidence of abnormality as justification for a verdict of "not guilty" unless the weight of such evidence is so overwhelming as to turn the scale at that point where, according to a legal and in a sense an artificial standard, criminal irresponsibility at last begins.

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[1] THE LANCET, 1926, i., 780.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH

A BRIEF SURVEY OF 1925

AT the wish of the Ministry of Health the reports of medical officers for the year included a survey of progress made during the preceding five years This, naturally resulted in their late issue in a number of cases, but many on which we have had the opportunity of commenting certainly indicate substantial progress in public health measures in spite of hampering financial restrictions Big schemes, of course have had to wait

Environmental.

The *housing* shortage is still acute and the districts able to provide for the natural increase of the population are fortunate. Private enterprise houses are only built for sale There is much subletting of municipal houses, and there are no houses being built for the poorest-paid workers. Slum clearances are held up by the shortage. The new Bill for rural housing is arousing the hope of better accommodation for the country labourer

Sewage disposal and the prevention of the pollution of rivers have made progress and in many districts the bio-aeration system appears to meet with approval As regards *refuse disposal*, there have been many complaints of the dumping of the refuse of London and other towns in the country districts, somewhat mitigated by the Ministry's suggestions for the regulation of tips.

As regards *water-supply*, chlorination has ceased to be a temporary measure and the competition for river waters seems to point to the need for a national survey and allocation of all the sources of water-supply. The exact meaning of the presence of the colon bacillus in waters and the influence of seagulls on its introduction are matters of interest.

The country appears to be waking up about *smoke abatement*. Classes for stokers are being held, and persuasion, education, and advice by experts are becoming recognised as a better way than prosecutions. Efforts are being continued to find a satisfactory smokeless domestic fuel, and thus to acquire the desired result without running counter to the national desire for an open fire. Local Bills now contain powers to stop the emission of grit. There is much encouragement of the use of gas and electricity Manchester, through its regional committee, may yet show England the way to deal with industrial smoke

The campaign against *conservancy closets* in towns is becoming more active, and even Hull is now taking a hand

Food.

The use of preservatives such as boric acid appears to be going on up to the time-limit, and the report of the borough analyst for Salford shows that skimmed milk masquerading as cream ’ may be taken as typical of many food sophistications. The meat regulations are doing good, and in several counties demonstrations have been held at the abattoirs for the instruction of sanitary inspectors in meat *inspection* There is a general expression of opinion in favour of the extension of the regulations to cooked meats

Graded milks make slow progress but have a useful educational effect. Clean milk *competitions* are numerous and many municipal institutions give the preference to Certified and Grade A (tuberculin-tested) milk. There is no lessened frequency of tuberculous milk and udders, but good results are hoped from the reintroduction of the Tuberculosis Order on Sept. 1st, 1925 Some counties have appointed whole-time veterinary inspectors, others have appointed inspectors under the Diseases of Animals Acts, while the remainder have done nothing A few rural district councils have arranged for regular veterinary inspection of their milk herds

Infectious Diseases

The Schick and Dick tests and subsequent immunisation are being increasingly used for hospital staffs for the prevention of cross-infection, and for the abolition of outbreaks in institutions Vaccines are being suggested for measles scarlet fever, and pneumonia. The prevailing type of scarlet fever is so mild that removal to hospital is being discouraged The stay in hospital is being shortened, and it is becoming common to call in the aid of the oto-rhinologist. Small-pox has been prevalent in many districts, but usually of the mild type, and much difficulty is reported in securing the vaccination of contacts Typhoid is referred to as almost extinct, and a large proportion of the few remaining cases are attributed to shell-fish

The reports of the *venereal disease* clinics show that syphilis is less prevalent and that attendances are improving though probably not many districts approach the low Edinburgh default of 11 3 per cent Most clinics now provide facilities for daily irrigation and intermediate treatment Owing to the reluctance of women to attend the clinics special facilities are provided in many districts for women and children

In the reports on *tuberculosis*, the most frequent wants mentioned are increased provision for advanced cases and for bone and joint tuberculosis The results of training for vocations have usually been disappointing Many counties and districts are now instituting complete orthopædic schemes, including all forms of crippling in addition to tuberculosis with a central hospital and out-patient feeders

Influenza was more prevalent during 1925 than in the preceding year *Encephalitis lethargica* was less so but the case fatality was, as a rule, greater. The need for special educational institutions for the survivors from this disease is being considered As regards *cancer*, early treatment still holds the field, and to this end facilities for obtaining a consultant's opinion free of charge have been arranged by some authorities. The need for research into the ætiology of *rheumatism* and for the provision of institutions on open-air lines for affected children is being more and more recognised

Maternity and Child Welfare.

Many reports refer to high maternal and neonatal mortalities Antenatal hygiene is gradually developing into real preventive midwifery Municipal maternity homes hold antenatal clinics and in some cases make attendance at the antenatal clinic a condition of admission A considerable number of authorities have appointed obstetricians to conduct the antenatal clinics In many districts courses of lectures by specialists on the danger signals in pregnancy and antenatal work are arranged for the midwives. The need for more maternity hospitals is more or less general, especially in view of present housing conditions.

Ophthalmia neonatorum still takes its toll of eyesight, owing to the failure to secure efficient treatment promptly. Light treatment is being tried fairly extensively both for rickety and debilitated children and for tuberculosis In the latter disease opinions as to its value vary from guarded to enthusiastic. Arrangements for the operative treatment of tonsils and adenoids are being improved and in many districts all children are admitted to hospital or nursing home for the operation.

Administration

Much progress has been made towards the coördination of the public health services so as to avoid overlapping and to secure one medical and nursing staff for children from birth to the school-leaving age. Attempts are being generally made to secure the pooling of isolation and small-pox hospitals in county areas, as it is found that in these days of motor transport one efficiently staffed and equipped hospital is infinitely better than the large number of unsatisfactory small hospitals which have been the rule up to now

The need for the education of the public in the essentials of healthy living, and especially in the right choice of food and in the new ideals of obstetric care, is stressed in most of the reports.

SCHOOL MEDICAL SERVICE

A SURVEY OF 1925

IN spite of great financial difficulties the service showed real progress in every branch of its work during the year Including routine and special cases, 2,619,350 children, or more than half of those in attendance at school, were examined, an increase of nearly 200,000 over the previous year The school staff now consists of 1140 whole-time doctors—or one to every 8500 children—780 specialists employed on ophthalmic, aural, anæsthetic, X ray and orthopædic work, 584 dentists, and 4520 school nurses The cost of this service in 1924–25 was £1,300,317, or about 2 25 per cent of the cost of public elementary education—not a high premium for health insurance

Preventive measures, designed to teach the child the way of personal health and to lay the foundations of national well-being, are gaining ground The educative nature of this work is now recognised by the closer union of all administrative and executive workers The Director of Education, the school-teacher, the attendance officer, and the school doctor each take a share in the work of child welfare, and the team-work now possible is bringing us nearer the goal The effective help and interest of the teachers, without which the medical work could not go on, has in places gone so far as to provide convalescent homes, country holidays, and funds for clothing

In view of the importance of the pre-school years, on which so much of nurture depends, it is gratifying to note the increasing cooperation between the public health and the school medical services, medical supervision will soon be continuous from birth to adolescence, for in some districts—e g, Leicester—the factory surgeons take their part in the roster In districts such as Acton (Dr G J Thomas) and Willesden (Dr G Buchan), defects discovered at the welfare centre receive treatment at the school clinics, and it has been noted that children who have come from the centres present a much lower incidence of defects (even allowing for more efficient parents) than those who have not been under such supervision. Fuller advantage is being taken of the activities of voluntary care committees and associations, notably those for mental welfare, which have established many occupation centres for low-grade mental defectives, and the Invalid Children's Aid Association which restores many ailing children to health by convalescent treatment The Central Council for the Crippled Child is now an integral part of the mechanism for dealing with physically defective children in 122 educational areas A complete scheme includes ascertainment, provision of remedial facilities, and provision of efficient after-care, it is under this last heading that organisers of physical education, beside suggesting and supervising the physique and morale of the normal child, can render valuable service by arranging for remedial and re-educative exercises

Measures to prevent debilitating and crippling influences have been developed along various lines The most successful results are to be seen in the open-air schools, the present accommodation of which is still inadequate for the needs of the country The cost per child at one of these schools averages £30, against £12 per child per annum in the ordinary elementary school, but this extra cost is fully justified by the permanency of the good results obtained, Dr G A Auden, for instance, found that 89 per cent of the 748 Birmingham open-air scholars maintained the improvement which all the children show when first admitted Nursery schools have worked wonders for younger children, as may be seen from the report of the Margaret MacMillan School at Deptford

Ninety-six additional school clinics have been opened during the year—there are now only five education authorities without—113 authorities have extended their existing provision Treatment of visual defects is more general and comprehensive than any other Of 184,533 cases of defective eyesight and squint, 80 per cent were treated It is now realised that infancy is the time for effective treatment to begin, and much valuable work has been done among pre-school children, witness Dr R R Garden's orthoptic treatment of Bristol infants The increase in facilities for in-patient treatment for the removal of tonsils and adenoids has resulted in the disuse of 11 school clinics for this purpose, the work having been transferred to hospitals where the child can remain all night In Nottingham the aural surgeon, Mr H B Tawse, uses artificial sunlight as a general tonic on children for a few weeks prior to operation Ionisation is found as a rule to be the most rapid and efficient method of treatment for various forms of ear disease, and 26 additional authorities made arrangements for this during the year Mr A G Wells (L C C) has extended ionisation to include a number of cases complicated with attic, mastoid, and other diseases Dr Alfred Friel (L C C) gives a clear outline of the method in Sir George Newman's Report for 1925 (page 49)

The facilities for dental treatment have been extended in most areas, and 133 new dental clinics were opened, leaving only 28 areas where no provision is as yet made The most effective training for blind children is that given in residential schools, unfortunately their cost is almost prohibitive, and excellent work is being done in special day schools

The difficulty of mental defect is increasingly recognised Mental defectives, says Sir George Newman, are expensive to educate, but they are more expensive to neglect Two Acts of Parliament, if only they were made effective, require the appropriate authorities to deal with such defectives The ideal solution seems to lie in the proper training of the child and adolescent, and the effective control of the adult Much has been done in providing special and residential schools

Encephalitis lethargica showed a fall in the numbers of new cases during 1925, and provision for treatment of after-effects has been made in two wards at the Northern Hospital, Winchmore Hill, London Valuable work has been done by school doctors in bringing to light the sequelæ of this disease, residential treatment is generally regarded as the only successful way of dealing with these cases, few of them respond to treatment as mentally defectives Some other infectious diseases have been unusually prevalent Small-pox was rife in parts of Durham, Yorkshire, Northumberland, and Nottingham, of 2139 children of school age who developed small-pox only five are stated to have been successfully vaccinated prior to the attack

The hygiene and sanitation of many of the schools throughout the country leaves much to be desired, and must be tackled soon if preventive medicine is to become effective Our knowledge of the normal physiology and variations of normal childhood is at present limited, as is our knowledge of the ætiology of many of the common diseases of childhood The relationship of heredity, environment, climate, and diet to physique and character is but imperfectly understood, and the exceptional opportunities of school medical work for solving these difficulties are being widely utilised Dr G Woolham has been studying the physical capacity of Manchester schoolboys and has worked out formulæ for assessing physical fitness Nutrition of school-children and sleep in relation to housing conditions and diseases have been investigated by Dr M Gross, of Stafford Thyroid diseases and iodine deficiency have been investigated by Dr. M Fraser. of Cumberland who maintains that goitre is but one of the lesser manifestations of iodine deprivation. Dr W M Ash of Derbyshire sounds a warning note on iodine medication through a public water supply Dr. Middleton Martin of Gloucester administers 1/10 gr. of iodine in tablet form for goitrous children, while Dr. Dunstan Brewer of Swindon uses collosal iodine Dr. E H M. Milligan. of Glossop in his investigation found that rheumatism is more prevalent in goitrous children. These and other researches on thyroid abnormalities are being correlated and analysed by Dr. Percy Stocks, of University College, and Dr Maurice Campbell of Guy s Hospital. who hope to summarise their findings in the near future.

Rheumatism with its protean manifestations is most prevalent during the school years of childhood and Dr C J Thomas (L C C) computes that there are 10 000 rheumatic children in London alone. In many districts school doctors are working in collaboration with practitioners consultants and University colleagues in continuous efforts to solve the many mysteries of this disease In Bristol Dr J Morrison has outlined the influence of environment in causing rheumatic heart disease: Dr A P Thompson (Birmingham) has been working along somewhat similar lines; and Dr R H Vercoe (Chelmsford) finds parental history the most important causal association and dampness of the house of less importance In Cheshire Drs A. V Stocks Marjorie Grant. and W J. McIvor are working along some original lines bearing on this disease and Dr E H Snell of Coventry. and Dr Mary Weston of Leicester have investigated chorea in relation to rheumatism These individual outlines will be finally worked into the complete mosaic by a committee of investigation appointed by the British Medical Association.

These are only a few of the original and scientific investigations carried out by school doctors during 1925. but they serve as an augury for the future, and an indication of the vitality that permeates the whole organisation.

MENTAL HOSPITAL REPORTS.

THE *Devon Mental Hospital* at *Exminster* had 1216 patients on its register at the end of 1925. an increase of 35 on the year before, and the accommodation for women is becoming strained. The death-rate was 6 63 per cent . the lowest since 1899. The cause of death was verified by autopsy in 63 per cent of cases The recovery rate was 37 4 per cent and among the private patients alone 47 4 per cent There were 21 cases of typhoid, with two deaths Systematic search revealed one carrier, and as the disease has shown no abatement the staff and patients are all being inoculated and the Widal test is being done on cases selected at random to test the efficacy of this protective measure There is still a certain amount of dysentery General paralytics are now being treated by induced malaria, and renal function tests are carried out on all subjects of operation. The value of luminal in epilepsy has been investigated Sixteen operations were performed in the new operating theatre by the visiting surgeon, and the ophthalmic surgeon saw a number of cases of eye disease and eyestrain. Thirty-eight patients were examined in the new X ray room · all accident cases are radiographed The new dental department has been visited by over 200 patients It is excellent to learn that a fortnightly out-patient clinic has been opened at the Exeter Dispensary and that patients discharged from the hospital can report here for after-care The clinic is run in coöperation with the Exeter City Mental Hospital 113 patients were on parole, and whole day bus excursions picnics ·and blackberry and daffodil parties were greatly enjoyed by other patients About 140 went to a travelling circus, and the time-table of dances, dramatic entertainments, &c occupies three pages of the report The Hobart mixer has effected such economy that it has been possible to dispense with one kitchen and an assistant cook The vegetable-slicer has resulted in a saving of £22 on marmalade alone. The floor and walls of the central kitchen have been tiled, and still more aluminium ware has been introduced. reducing considerably the expense of breakages. The annual report is a specimen of the work turned out from the hospital's printing office. and is illustrated this year by two half-tone plates Patients are also employed in the weaving-room, where blankets tweeds, and serges are made; in mat-making, net-making, knitting, and tailoring

A cinema and wireless apparatus and a special bath for hydrotherapy have been installed The visiting Commissioners remark on the canvas rest which has been devised for the comfort of patients in the continuous bath, and add that "the spirit of progress which has been noticed on former occasions . has been admirably maintained "

The difficulty of finding suitable candidates for the nursing staff is increased by the lack of proper quarters Nine more of the staff obtained their M P.A. certificate during the year

The annual report of the Asylums Committee of the *City of Birmingham* deals with two mental hospitals At *Winson Green* there were 743 patients on Dec 31st. 1925 The recovery rate was 45 6 per cent . a slight increase on the previous year. and well above the average figure. Recovered patients were sent out on trial before discharge. and received money grants where necessary. The death-rate was 7 7 per cent . the lowest since 1851 Post-mortem examinations were made in 63 8 per cent of the deaths In addition to spring influenza there were four cases of infective diarrhœa Malarial treatment of general paralysis has resulted in improvement, but not in cure. 65 per cent of the patients are employed in the house. grounds and farm. Parole and short leave were granted to a large number A wireless set was installed in the hall and a gramophone in each of the wards At the end of 1925 no less than 64 5 per cent of the nurses were fully qualified in mental nursing The visiting Commissioners remark that "the conditions prevailing here afford an example of what can be done in an old institution under an administration based on modern methods . . and a sympathetic regard for the comfort of those under care"

At *Rubery Hill and Hollymoor Mental Hospital* there were 1691 patients at the end of the year The recovery rate was 39 15 per cent . but 68 03 per cent of the direct admissions were discharged recovered or relieved The death-rate was 6 32 per cent ; autopsies were performed in 74 7 per cent An outbreak of typhoid occurred in the spring and affected three nurses and two patients Every female patient was tested serologically and 13 carriers were detected. The outbreak was controlled by vaccination and segregation The hospital has a visiting surgeon, rhinologist gynæcologist, and dentist About 830 patients are provided with employment in the wards, grounds, and workshops Twenty-nine nurses obtained their M P.A. certificate during the year. The hospital shares with Winson Green the services of a welfare visitor who visits all patients on trial and some of those discharged and who also works in the wards Considerable attention is paid to the elimination of toxic foci, and good results have followed this line of attack.

The *Wilts County Mental Hospital* had 1168 patients in residence on Dec 31st. 1925, an increase of 110 during the year. The death-rate was 6 9 per cent . and autopsies were performed on 82 per cent The general health was good, but there was a heavy incidence of dysentery—33 cases with 12 deaths There was, however, no typhoid The recovery rate was 36 1 per cent All but three of the 84 patients discharged were sent out on probation first, 32 of them with a money grant The committee remark on the attention attracted throughout the county by the idea of out-patient clinics in connexion with mental and general hospitals, and hope that a scheme may mature before long.

There are two mental hospitals in *Kent* At *Barming Heath* there were 1793 patients at the end of the year, owing to the serious overcrowding on the female side a house was rented as a nurses' home. The admission-rate for males, on the other hand, was the lowest for more than 50 years The death-rate was 6 2 per cent, and post-mortem examinations were made in 90 9 per cent of the fatal cases; 20 per cent were over 70 years of age The recovery rate was 36 per cent and the general health was good but for a severe epidemic of influenza in the spring There was one case of dysentery and two of enteric An occupation officer has been appointed, and 65 6 per cent of the male patients are employed Two more workshops, for mattress-making and upholstery, have been opened, and the printing shop extended. Various new forms of occupation have also been introduced for the women, mat-making, hat and glove-making, and basket-making One female ward holds itself responsible for the care and repair of the linen and clothing of the corresponding male ward, and this personal note has interested a number of patients who previously refused to take up any work A large proportion of patients are allowed parole, and three male wards and seven female wards have open doors Cases considered fit for discharge are usually sent out on trial first The Commissioners remark that they are impressed by the efficiency in management and the ardent efforts made by the staff of this hospital to do all that is possible for the welfare of the patients The lighting system is at present unsatisfactory, and it is hoped to instal electricity when finances permit Five wards on the male side are staffed by women nurses, 69 of the staff hold their M P A certificate At *Chartham Down* there were 1182 patients, and, as 171 more beds have been provided by the new blocks, there is vacant accommodation proportionate to the estimated increase in population for three or four years The death-rate was 8 per cent and the recovery rate 47 per cent There was no dysentery and only mild influenza The visiting Commissioners remark that "an earnest endeavour is being made to bring the hospital thoroughly up to date, although a great deal remains to be done" Suitable cases of general paralysis have been treated with induced malaria and others by the Starke method with equally good results A small clinical laboratory is being equipped, and an admission hospital is urgently needed Fifty-three nurses hold their M P A certificate

The average number of patients in the *Roxburgh District Asylum* during the year 1925-26 was 357, including private patients and three voluntary boarders. The recovery rate was 27 per cent and the death-rate 7 7 per cent Post-mortem examinations were held on 18 out of the 28 patients who died There was no serious epidemic or infectious disease Some of the verandahs have been enlarged and a new mess-room for the nurses completed Several patients were sent out on probation before discharge

The *West Riding Mental Hospital* at *Wakefield* housed nearly 2200 patients at the end of 1925 The recovery rate was 16 62 per cent and the death-rate 9 23 per cent. The superintendent points out that the apparent recovery rate is reduced by his practice of excluding from that figure the large number of discharged patients (nearly 40 per cent) who were sent to the care of their relatives without much likelihood of recovery Moreover, no less than 37 per cent of the admissions during the year were to be regarded as definitely incurable He includes among these all general paralytics, for he is not satisfied that any true cure has been produced among these patients, although any form of acute illness will probably cause a remission of symptoms *Post-mortem* examinations were performed on 86 per cent of the 197 deaths, and the results gave a tuberculosis incidence of only 3 per cent, while dysentery and typhoid only occurred in 0 5 per cent each The routine work on dysentery showed how dangerous it is to mix newly transferred cases with patients in residence, as about 20 per cent of them presented a positive Flexner agglutination A good deal of histological research was carried out in the pathological laboratory in addition to the routine work Many structural alterations and improvements were completed, and congestion was relieved by the remodelling of a villa residence for females on parole and of a home for the Stanley Hall boys An operating theatre will be ready shortly Only eight patients were sent out on trial This hospital is one of the pioneers in out-patient work, and 63 new cases were admitted during the year under review It is regrettable, though, that the 12 cases found unsuitable for clinic treatment could not be admitted at once and without certification Nine more nurses obtained their M P A certificate

There are two mental hospitals in Hampshire At *Knowle* there were 1018 patients at the end of last year This included a large number of senile cases and mental defectives, which accounts for the relatively low recovery rate of 22 65 per cent The death-rate was 6 61 per cent, the cause being verified by autopsy in 63 per cent of the total number The general health has improved considerably. The number of deaths from tuberculosis has fallen from 22 in 1922 and 16 in 1924 to 5 in 1925; there were no cases of colitis and only two of typhoid fever Eight carriers have been isolated, and the laboratory investigation is still proceeding All the carriers are now kept isolated The medical superintendent attributes the reduction in colitis to decrease in overcrowding, improved diet, cleanliness, and nursing, and more time spent in the open air A ward has been reconstructed for the treatment of general paralytics by malaria About 60 patients have parole within the grounds, and 30 more are allowed to go outside Three male and two female wards are "open" The infirmary wards have been subdivided so as to provide long-needed admission wards There is a well-equipped laboratory, and one of the attendants is being trained as assistant Four male and six female nurses obtained their M P A. certificate during the year

At *Park Prewett* there were 1153 patients on Dec 31st last There was a recovery rate of 25 69 per cent, reduced by the high percentage of unpromising admissions and the discharge of 40 patients to the care of their friends under Section 79 of the Act The death-rate was 6 16 per cent The general health during the year was good, and there were no epidemics. Parole is granted wherever possible, and many patients are allowed to sit up until 10 P M A consulting surgeon has been appointed, in addition to the consulting ophthalmologist The dental surgeon has treated more than 400 patients Only one patient suffered from tuberculosis, and this disease accounted for two deaths only Verandahs are extensively used in treatment There is a room for biochemical and bacteriological work, and an electrically heated continuous bath It is hoped that the scheme for a new nurses' home will induce nurses to remain longer at the hospital Thirty-five of the staff hold their M P A certificate, nine more having obtained it during the year

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 18TH, 1926

Notifications —The following cases of infectious disease were notified during the week Small-pox, 315 (last week 328), scarlet fever, 1531, diphtheria, 1111, enteric fever, 48, pneumonia, 1316, puerperal fever, 59, puerperal pyrexia, 109, cerebro-spinal fever, 9, acute poliomyelitis, 25, acute polio-encephalitis, 6, encephalitis lethargica, 41, continued fever, 1, dysentery, 6, ophthalmia neonatorum, 113 There was no case of cholera, plague, or typhus fever notified during the week

Deaths —In the aggregate of great towns, including London, there was no death from small-pox, 4 (1) from enteric fever, 28 (0) from measles, 5 (2) from scarlet fever, 35 (9) from whooping-cough, 40 (12) from diphtheria 45 (12) from diarrhœa and enteritis under 2 years, and 60 (18) from influenza The figures in parentheses are those for London itself

PUBLIC HEALTH IN THE LOCAL LEGISLATION OF 1926.

IN so far as public health can be promoted by Acts of Parliament, the local are not less important than the general statutes Progressive local authorities take the initiative , the rest of the country follows their example in time In the campaign for public health the local skirmishings ahead of the general front line are always worth study and for this purpose the local Acts of 1926 provide good material The Public Health Act of 1925 greatly enlarged the powers of local authorities, but evidently there is a demand in many places for powers still wider in matters like the protection of food supplies and the prevention of infectious disease. As to food, the local Acts of 1926 furnish frequent instances of the usual clauses prescribing adequate larder accommodation, restricting the handling or cooking of food by infected persons, regulating ice-cream and potted-meat manufacture, and empowering the supervision of the transport of food There are also examples of clauses for penalising the original vendors of unsound food and authorising the search of vehicles, sacks, parcels, &c The Chorley and Guildford Acts prohibit the introduction of inedible fats on premises where food is prepared The Guildford Act prohibits the blowing of meat carcasses and makes food poisoning notifiable Many localities obtained in 1926 a statutory widening of the definition of "infectious disease," the list in the Infectious Diseases (Notification) Act of 1889 being thus enlarged to include such illnesses as measles, German measles, whooping-cough, chicken-pox, scabies, ringworm, and influenza As usual, restrictions have been placed in many places upon Sunday schools and entertainments in times of epidemic Parents are to notify the head teacher of a child's infection The withholding of information from medical officers is frequently made punishable Power is taken to obtain the names of an infected household's laundry, and, at Chorley, to obtain lists of a dairyman's customers Another clause in the Chorley Act authorises the municipality to supply doctors with antidotes At Hackney a medical officer may enter a common lodging-house under warrant There is often a power for the removal from houses of the bodies of persons dying of infectious disease Sufferers from any grave infectious disorder may be removed to hospital at Bristol without a justices' order if the sufferer or his or her parent or guardian consents There is a stronger but not entirely novel clause in the Hackney Act for removing a patient certified to be suffering from pulmonary tuberculosis when his existing accommodation is such that proper precautions against the spread of infection cannot be taken, if "thorough inquiry and consideration have shown the necessity in the public interest for the compulsory isolation of the person so suffering" The order of a metropolitan police magistrate is necessary and may be made subject to independent medical examination Other anti-tuberculosis clauses elsewhere include the disinfection of premises and the special prohibition of handling or cooking food The Colwyn Bay Act (Section 86) and the Margate Corporation Act (Section 78) have identical provisions for demolition orders in respect of stables or cowsheds where animals are kept, on certificate by the corporation's veterinary surgeon that an infectious or parasitic disease has appeared and that efficient disinfection is not possible

There are certain novelties in the local Acts of the past year which have a special value as precedents Bristol has secured a power to make by-laws under Section 157 of the Public Health Act of 1875 for compulsory notification where bathrooms are erected and geysers or other hot-water apparatus installed for the purpose of baths This will be found in Section 86 of the Bristol Act , Section 87 prohibits the erection of any house, building, or structure in streets not formed or sewered, but allows a right of appeal to the magistrates Housing and town planning being closely allied to public health, we may also note that the London County Council has obtained a power to extend the 1925 Housing Act in the direction of commercial accommodation Southend-on-Sea and Margate can now prevent erections on forecourts which mar the local amenities Eastbourne took a notable step towards acquiring the adjacent downs by compulsory purchase, failing agreement Newcastle has obtained town-planning powers over lands already developed Swindon is authorised to set aside parks, gardens, and pleasure-grounds for the exclusive use of boys and girls attending elementary and secondary schools in the borough. In connexion with water-supply it will be found that the Rhymney Valley and Taf Fechan Water Boards are now allowed to make reasonable subscriptions to associations of water authorities and to pay the costs of attendance of members and officers at conferences The latter Board has been given a new power to impose summary penalties for the breach of any order it may make prohibiting sheep-washing (with or without chemicals) in the area including the Taf and its tributaries and the Board s reservoirs The local legislation of 1926 does not make much mention of river pollution, but there are occasional references to the protection of fisheries—e g , to the Dart waters in the Paignton Act, Rumworth reservoir in the Bolton Act, and the Hampshire Conservancy in the West Hampshire Water Act There is a remarkable clause in Section 9 of the Stoke-on-Trent Act authorising the corporation to contract with the owners and occupiers of factories or other trade works for the supply of sewage effluent The contracts are to provide that the effluent shall not be used for any other purpose than for condensation or boiler or other factory purposes or for washing coal or coke on the premises of the person supplied There is mention of the London, Midland and Scottish Railway as a possible purchaser of effluent, apparently in connexion with its canals By way of safeguard the consent of the Ministry of Health is to be necessary to all contracts, and he may impose conditions to prevent nuisance or danger to health , further, a Factory and Workshops Act inspector may bring offenders before a court of summary jurisdiction. The City of London (Various Powers) Act regulates the discharge of offensive liquids (chemical or trade refuse, waste steam, liquid heated above 110 degrees Fahrenheit, crude petroleum, &c) into sewers, and has special provisions for waste pipes conveying acids from premises where chemicals are used The slaughter of animals is prohibited in the City by the same Act Elsewhere there are clauses against offensive trades in the Acts relating to Bristol, Chorley, Colwyn Bay, and Paignton, and against smoke nuisance in those relating to Bristol, Chorley, Halifax, Margate, and Newcastle-on-Tyne These localities, together with Guildford, Southend-on-Sea, and the urban district of Mynyddislwyn are some of the principal pioneers of public health in the local legislation of 1926. In many cases local authorities have already shown the way , others, no doubt, will follow

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STREET ACCIDENTS AND INSURANCE AT SHEFFIELD The Governors of Sheffield Royal Infirmary have decided to relieve the pressure caused by casualties by providing an entirely separate casualty department, and the scheme has been referred to the medical staff for consideration of details At the meeting at which this decision was taken Mr R W Matthews, who presided, urged that the voluntary hospitals should be given statutory power to recover the cost of insured patients

DOMESTIC SERVANTS AND CONTRIBUTORY SCHEMES An endeavour is being made to induce domestic servants in the 250 parishes served by the East Suffolk and Ipswich Hospital to join the contributory scheme which is already in successful operation It is pointed out that since household servants have not to pay unemployment insurance they are better off than many employed persons , moreover, the Health Insurance Act does not entitle them to free treatment at the hospital By joining the scheme the full facilities of the hospital would be available to them

UNIVERSITY COLLEGE, LONDON, AND A STOLEN DOG

A SUMMONS DISMISSED

AT Clerkenwell Police-court on Dec 22nd 1926, before Mr Dummett, magistrate Dr E B Verney, Professor of Pharmacology at University College, London, was summoned on the charge of having in his possession a small mongrel wolfhound the property of Frederick Smythe, of Doughty-street, W C, knowing it to have been stolen

Mr E D Wetton (for the prosecution) said that the summons was under Section 19 of the Larceny Act, 1861 The owner of the dog would give evidence that the dog was safe in his possession on the morning of Nov 19th, and it was common ground that it was at University College at 12 30 or before without the consent of the owner He submitted that it was not necessary for him to prove that Prof Verney received the dog knowing it to have been stolen, it was sufficient to prove that Prof Verney had good reason to know that the dog was stolen between Nov. 19th and 22nd, and that before it was returned to its rightful owner he remained in possession of the dog, knowing it to have been stolen

Mr Frederick Smythe was the first witness examined by Mr Wetton He said that he had called at University College on the afternoon of Monday, Nov 21st, and had seen Prof Verney, and told him that on the previous Friday, about 11 o'clock, the dog had been stolen from the front door-step Prof Verney had then gone to the end of the paved courtyard and unlocked a place and turned up a light, and after a minute or two had come back and said that he was very sorry, but he could not do anything without the Provost (Sir Gregory Foster), and that he would go and see the Provost When he came back, after some considerable time, he said he was very sorry indeed for all the trouble witness had had and for the long wait, but the Provost had, unfortunately, gone He asked witness to return on the next morning at 10 o'clock, when he saw the Provost and Prof Lovatt Evans, as well as Prof Verney The Provost said that at about 11 30 on the previous Friday they had received a dog somewhat answering the description, and Prof Verney brought up the dog, who recognised his master and went away with him

In answer to Mr Roland Oliver, K C, who appeared for Prof Verney, witness said that he was treated with perfect courtesy by Prof Verney, who showed every sympathy with his loss Prof Verney promised that in the interval between witness's first and second visits to the College nothing should be done with any of the dogs in their possession Witness admitted that the Provost also had treated him with perfect courtesy, and that before going away with the dog he had signed a statement acknowledging the return of the dog, and had added the words "I desire to thank all concerned for the kind and courteous way I have been treated" He had gone away from that interview perfectly satisfied, and had offered to pay for the dog's keep while it was there

Mr Oliver then asked whether the solicitor in this prosecution, Mr E Hayes Jones, had been employed by the witness to do any work before this prosecution and the following facts were elicited —

Witness (answering) No, I have had very little work for a solicitor

Q Did you go to him or did he come to you?

A I went to him

Q Who sent you to him?

A The British Union for the Abolition of Vivisection

Q And they asked you to go to their solicitor?

A I wanted to prosecute, and I considered I had a right to do so I had not legal help at the first hearing, and I wanted legal help, and I wanted financial help

Q And they very kindly sent their solicitor. I suppose they are paying the costs for you, aren't they?

A Yes

Q It does not seem to have much to do with them, does it, whether your dog was stolen or not?

A I think so

Q The Society against vivisection?

A Yes, I lost my dog, and it was taken there for the purpose of vivisection I am as dead against it as they are

Mr Wetton then called Leonard Shaw, an animal boy at University College, who gave evidence as to the arrival of the dog at the kennels

Mr Wetton said that he wanted to tender evidence with regard to a system

The Magistrate You have proved description of the dog, and that they went to the kennel and then came back, and Prof Verney said they could do nothing because the Provost had gone So far as that indicates anything at all, it indicates that the Provost was the person who was responsible

Mr Wetton Prof Verney went to the kennel where dogs were kept, lit a light, unlocked the kennel with a key, and came out again, and I ask you to infer that after the interview with Smythe and the description by Smythe, and that Prof Verney was the person he saw on the 22nd, that Prof Verney was the person responsible He gave Prof Verney a written description of the dog, and Prof Verney did not then say "No, I cannot do anything until next day"; he went to the compartment where dogs were kept, he lit a light, and remained in the kennel for some time, and then came back and said, "I must see the Provost," and then the next morning the dog was returned

The Magistrate · The only inference I can draw is that Prof Verney, desiring to ascertain whether the dog as described was there, went to look, and, assuming that he saw a dog answering the description, he concluded that it was the dog Still, he came back and said "I have not the power, the Provost is the man"

Mr Oliver I do not want it to be thought by anybody that I am contending that there can be no evidence it was stolen; I am very loath it should be suggested that that was the only defence we can have, that Prof Verney was not in technical possession of the dog

The Magistrate I am sitting here as magistrate to do a public duty and to save time where I can, there are other cases to be heard And if the prosecution fails to satisfy me on the essential points in this section, it is my plain duty to say so at once, and without any reference to the merits of the case on either side

Mr Wetton It is quite clear that on that Monday Nov 22nd, the dog was under Prof Verney's control

The Magistrate What evidence is there?

Mr Wetton Because Prof Verney was the person in question Prof Verney was brought to him

The Magistrate Prof Verney sees the dog and says something which shows that somebody else had control If you ask me to say he had it in his possession I cannot I cannot prevent your asking me, but it is no good I dismiss the summons

Mr Oliver You have got discretion, Sir, in the matter of costs and I ask you for the costs of this action Here is a case, I submit, where the law has been abused, deliberately abused, not by the poor old gentleman who owns the dog, but in order to attack Prof Verney This Society is paying his costs He has been put up to do this, and I do not take it that the Society will leave the poor old gentleman to foot the bill for this disgraceful prosecution Being unable to attack the methods of this University College, who carry on experiments under licence and who are in every way absolutely under proper supervision and care, and are thoroughly humane, being unable to attack on the lines they want to attack animal experiments they put up this poor old gentleman to be the nominal prosecutor in a case brought in a way which suggests that Prof Verney has been guilty of receiving stolen property That is their method of getting at Prof Verney. and it is an abuse of the process of this Court It is a perfect scandal that it should have been brought against this gentleman. he is as a matter of fact accused of dishonesty. That is their method I therefore ask you to say Sir that on its merits you give my client some expenses I ask you to say it is not right that this gentleman or the University College shall be put to this trouble to establish what never ought to have been assailed

Mr Wetton So far as the College is concerned. there is a dog which has been stolen and within half an hour of its being stolen it has found its way to the College and is admitted to have been under their control by Sir Gregory Foster It may have to be considered whether we shall have to bring him into Court on a subsequent occasion The dog is stolen for a short time and it is only by great persistence that this gentleman gets his dog back

The Magistrate That is no evidence It might justify taking action by the owner of the dog As you say. a dog is taken away at 11 o'clock, and at 11 30 is in possession of University College One understands that the owner of the dog should feel some resentment and a desire that some investigation should be made but you are not representing the owner; you are representing a Society which rightly or wrongly. takes a strong view on the matter of vivisection and from the evidence under their consideration have launched this prosecution I have no interest in the question whether it is scandalous but whether it is a prosecution which should have been launched seriously by people with a knowledge of legal procedure on the evidence at their disposal. They must have seen that it must fail, because they had no evidence on the vital point of possession I am against you on that view. I can quite imagine that Prof. Verney and all the officials very seriously regretted that they should have been dealing with people who bring dogs to the College in that way. It is quite obvious that their view will be that such inquiries as they may make in future will have to be supplemented by further measures to prevent any such scandal as a dog being taken in this way, and I am sure the hospital authorities will strengthen their methods

Mr Oliver The man from whom they bought this dog was the man they had been dealing with for ten years, a man named Travert He is of very good character. and has never been convicted or suspected of any stealing He had employed an agent and University College are investigating that source and they are horrified at what has occurred

The Magistrate I am glad to hear that because this dog was obtained by a person in the Caledonian Cattle Market Whoever stole this dog took it to the Caledonian Cattle Market and it was purchased by the person who sold it to the Hospital So I am sure now the Hospital know that, they will put their house in order

Mr Oliver They have done so Sir

The Magistrate I do not think this prosecution ought to have been brought because it ought to have been clear that it must fail on the ground of the information I have had I shall give only small costs five guineas costs against the prosecution

At the close of the case Mr Oliver remarked that several times the word ' hospital had been used when obviously it should have been ' college : the two institutions were under separate administration

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JOINT NURSING AND MIDWIVES COUNCIL (NORTHERN IRELAND) —This Council is about to revise its list of examiners and invites applications from registered medical practitioners (including women) resident in Northern Ireland who would be willing to act as examiners of midwives Particulars may be had from the Registrar, 118, Great Victoria-street, Belfast to whom application should be sent not later than Jan 15th

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THE TREATMENT OF CORNS

BY E G V RUNTING

A CORN has been described by Dr P S Abraham as " a localised tylosis occurring in particular situations where there is intermittent pressure from without and solid resistance from within " It is characteristic of a corn that the keratinous cells are moulded into one or more conical horny points The impingement of these stunted cones on the sensitive tissue beneath or even directly on a nerve filament or plexus is the immediate cause of pain These horny indurations may form one or more crescentic shapes conforming to the contour of the bony prominence of a joint The soft corn is identical in structure Whereas the hard corn is caused by the direct intermittent pressure of the leather of the boot the soft corn is induced by indirect intermittent pressure through one toe on another. skin being in direct contact with skin The condition of the skin is relaxed through deficient evaporation of sweat and heat and moisture and reduces it to a sodden or macerated state. Soft corns are often characterised by ring-like indurations round the edges which are the most concentrated part of the growth

It is peculiar to chronic growths of this type that the tissue immediately beneath the apex of the corn is subject to morphological change as a consequence of nature's effort to modify the pressure at this point by creating a sort of sac or adventitious bursa. When this structure exists it has an important influence on the redevelopment of a corn after treatment should this not be adequate The bursa is particularly evident in, although not confined to. soft corns

Prophylaxis

Prophylactic and remedial measures entail consideration of the shape and length of the boot or shoe A straight inner line for the great toe is very important, while sufficient upper leather to give room for the toes to extend is essential. Measurement taken while the person is sitting is misleading. for that position does not allow for the elongation of the foot when standing and walking The shank should fit well up into the arch from the heel to immediately behind the metatarsal heads The stocking should have some cushioning properties, some fine silk stockings are made with woollen feet and should be worn by those who tend to suffer from corns in preference to those with silk or cotton feet Coarse or too hard threads should be avoided, the coarse seams so often found even in expensive stockings may be sufficient to produce corns. especially in children The habit of wearing two pairs of socks or stockings in winter needs careful supervision. since it is often the cause of trouble from induced toe flexion The effects of the occlusion of air when patent leather and rubber shoes are worn may be detrimental nor does the frequent soaking of the feet in hot water which is a habit far too prevalent. have a beneficial effect on feet subject to corns There are some patients who persist in following the dictates of fashion and refuse to alter their type of footwear, even if it is obviously faulty These patients in whom the disorganisation of the skeletal contour is often beyond correction can be relieved only by the regular attention of those trained in manipulation of neglected conditions of the feet

Applications

Advertised remedies for corns usually contain in some form preparation of the active principle of salicylic acid. this is applied either in an ointment. plaster or collodion solution. and with it is generally combined a small quantity of cannabis indica. added for its anodyne effect, although creosote is sometimes used for this purpose. There is no doubt that exfoliation of the callous tissue can be brought about by preparations of this description if they are used in sufficient quantity to impregnate the growth The chief danger in their use would seem to be injudicious and excessive application, especially where they are not confined strictly to the growth They do not, as a rule, separate the more organised apex of the chronic corn

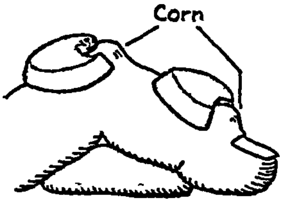
Another popular remedy is the corn ring made of felt spread with isinglass or the more tenacious zinc oxide or rubber adhesive The corn-ring often acts successfully as a temporary remedy, but, since it compresses the growth on all sides, is apt eventually to concentrate the centre of the growth so as to make it more painful than before This is less likely to occur when the anterior portion of the ring is thinned, leaving the proximal half as the protection In some forms the ring plaster has a salicylic disc placed in the cavity to cover the corn, this has the advantage of localising the action of the acid

Operative Methods

The foot or toe should be properly cleansed and then painted well with tinct iodi mitis, which does not necessarily obscure the working; alternatively lint saturated with a 1 in 20 or 1 in 40 aqueous solution of carbolic acid may be applied in close contact with the field of operation for at least five minutes before working The last-named procedure is useful as it tends to lessen surface sensibility

Some chiropodists practise removing the corn in its entirety by the use of mouse-tooth forceps and scalpel, but this method is not very popular in Great Britain, where the general practice is to pare away the surface and excavate the corn even to its minute nucleus, this cannot always be managed at one operation, but it can be mostly done by the skilled manipulator who pays particular attention to making tense the soft tissues with the fingers of his left hand so that there is no impingement or drag on the surrounding sensitive tissue Lightness of touch is essential

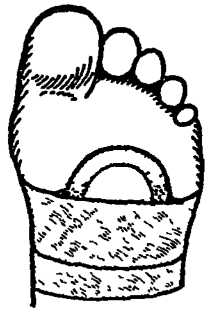
Fig 1



Showing pads and prop in position

(The figures are from "Practical Chiropody," The Scientific Press, Ltd)

Fig 2.



Showing centre pad in position and the metatarsal strapping used to correct lateral spread

After the complete enucleation of the corn the operator gives his attention to restoring the tissue to its normal condition Here two essentials must be observed, first, any semblance of a bursal sac must be enucleated, and the papillæ must be induced to resume their normal form The latter condition may be brought about by the use of a nitrate of silver solution (25 per cent), by compound tincture of benzoin or balsam of Peru Another essential is the removal of the cause of the trouble Corns usually form upon the prominences of the foot more directly in contact with the shoe As a rule this is due to malalignment with flexion of the toes, which often is accompanied by lateral spread and possibly misplacement of the metatarsal bones It is quite possible, where the ligaments and tendons of the toes will allow them to be straightened, to correct this spread by judicious padding A carefully adapted prop placed underneath the toe so as slightly to lift the distal and second phalanges, with a crescent-shaped pad placed on the dorsi proximal aspect (see Fig 1), will often have a straightening effect as well as providing protection to a flexed toe It is hardly necessary to point out that unless this padding is done skilfully it may damage rather than help the condition, but in many cases where feet have spread laterally a carefully adjusted strap round the metatarsal bones has been beneficial in restoring alignment (Fig 2)

Radical excision of the growth has been successfully performed by surgeons, but following this operation there have been occasional cases when minute corns have formed on the cicatrix, which have caused pain as intense as that produced by the original growth

Seed-Corns

A peculiar type of corn which is often found in persons with very dry skins consists of small nuclei about the size of a millet seed These corns are usually multiple and may be distributed more or less uniformly over any part of the plantar surface of the foot They occur virtually irrespective of pressure and are found especially in people of mature age Sometimes small crystalline bodies may be found involved in the nuclei The heel and plantar arch are often the principal seat of this particular trouble These growths can be picked out individually, but the use of a mild salicylic plaster (5 per cent) covering the whole area for three or four days prior to operation greatly facilitates removal

Verrucæ

A type of growth which has something in common with, and is often mistaken for, an ordinary corn is a pathological condition of the prickle-cell layer known as verrucæ These pedic warts are most commonly found in growing children, but I have noticed that during and since the war many more adults have been subject to this trouble which, on the foot, is a source of great pain These warts are infectious, but I have found that the successful cure of one attack of verrucæ of the foot produces immunity from others for many years, if not permanently Trauma is one of the factors in producing these formations, they mostly grow on the fleshy parts of the foot, such as the plantar surface of the metatarso-phalangeal region and on the same area of the heel, but they may occur in other parts of the foot and are occasionally met with on the dorsum of the joints in the usual position of ordinary corns, at the apex of the toes, or even under the edges of the nails When the surface is cleared away by paring there is disclosed a spongy growth which shows the ends of elongated papillæ combined with soft cells As a consequence of the rapid proliferation of the cells of the rete Malpighii the papillæ are so crowded by this accumulation that they become attenuated and squeezed upward and downward, their capillaries being often obliterated, though not always, since, when the growth is pared, there may be slight hæmorrhage from its centre The sponge-like surface may be dotted here and there with small dark-red or blackish stains, and the growth has a rubber-like consistency There is usually a history of throbbing pain, especially on lowering the foot to the ground after a night's rest, on putting on a boot in the morning, and on immersion of the foot in hot water After the boot has been worn for some time the pain may get better Surgeons treat these cases by excision, radium, or X rays Chiropodists sometimes apply the minor forms of electricity if trained in its use, most of them use chemical escharotics such as nitric, monochloracetic, trichloracetic, pyrogallic, chromic, or salicylic acids When treating these cases the chiropodist makes a point of using removable pads judiciously adjusted in order to obviate any direct pressure

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Central Association for Mental Welfare—A special ten weeks' course for teachers of mentally defective and of dull and backward children is to be held in London from May 2nd to July 9th under the direction of Miss Lucy Fildes Copies of the prospectus may be had from the offices of the Association at 24, Buckingham Palace-road, London, S W 1

Correspondence.

"Audi alteram partem."

ADOLESCENT ALBUMINURIA

To the Editor of THE LANCET.

SIR,—Dr. H. H. Bashford's article in your last week's issue raises several interesting points and it supports the current medical teaching as to the significance of adolescent albuminuria as illustrated by patients whom he has observed for 7 to 14 years. The condition under discussion is that of albuminuria occurring in young adults unaccompanied by any other signs of renal or constitutional disability. I would emphasise the importance of Dr. Bashford's opinion that "those cases in which albumin is consistently found in the after-rest specimen ought certainly to be regarded more stringently" than those in which the after-rest specimen is albumin-free. The opinion, thus expressed, is more conservative than is the statement in his fourth conclusion, "That in the great majority of cases the after-rest specimen is usually free from albumin."

I believe that the presence of albumin in the after-rest specimen distinguishes certain cases which might otherwise be diagnosed as suffering from adolescent or functional albuminuria; and I believe that in some of these cases the albuminuria is an expression of irritation of the renal parenchyma by bacterial toxins. They come properly, therefore, under the heading of toxæmic kidney. I think that I have seen albuminuria as the sole expression of abdominal tuberculous adenitis, and I believe that focal sepsis, such as occurs in chronic tonsillitis is responsible for albuminuria in others. In these patients there has been a trace or faint trace of albumin in the after-rest specimen, but no cells or casts or other evidence in the present condition or past history to indicate renal or constitutional disability. These cases occupy an intermediate position clinically between functional albuminuria and Bright's disease.

I am, Sir, yours faithfully,

GEOFFREY EVANS.

Park-square East, London, N.W., Dec 27th, 1926.

THE INCUBATION PERIOD OF TUBERCULOSIS

To the Editor of THE LANCET.

SIR,—We have in Plymouth a residential hostel for children, who are "contacts" in tuberculous families but are apparently healthy. The evidence afforded by the 20 years work in France of Grancher, and more recently of Leon Bernard, Calmette, and others confirms my own experience, as tuberculosis officer in Plymouth of the frequency of "personal" infection. Under our national system of tuberculosis schemes we have a regular examination of all "contacts" and it is difficult to understand why public health committees do not more often permit tuberculosis officers to send selected cases to such hostels or to board them out thus minimising the risk of infection of the coming generation which arises from intimate association with "open" or advanced tuberculosis in overcrowded premises. My immediate object in writing is to obtain if possible reliable statistics of the incubation period or periods of pulmonary and *other forms* of tuberculosis in man and animals. The periods may vary, as far as my notes of cases show, with the type of tuberculosis with the organs, systems, or structures involved (e.g., a few weeks in the meninges, many months or years in the lungs and the joints), and with age and sex. Such variability in the periods between primary infection and clinical manifestation is, of course common to many *bacterial diseases*, such as leprosy. I should be content with obtaining approximate statistics which may assist those who are attempting to educate the public in this important preventive measure.

I am, Sir, yours faithfully,

F. G. BUSHNELL, M.D., C.C.

Plymouth, Dec 24th, 1926.

PASTEURISATION OF MILK.

To the Editor of THE LANCET.

SIR,—The recent correspondence under this heading in your columns did not exhaust the question of the effect of heat upon milk, to which I should like to return. Various speakers at the National Milk Conference held in November last seemed to think that clean milk from tested herds must necessarily be an expensive article, and that all milk that was not produced from tubercle-free herds must be pasteurised. If these assumptions are true, then it necessarily follows that the milk-supply in our large centres of population will be reduced to the position of those found in New York—namely, 2 per cent. of the supply is Certified Milk sold at a price which makes it a fancy article and 98 per cent. is pasteurised. In England, on the other hand, it is possible to sell Grade A (tuberculin-tested) milk in our provincial towns at a price which is not more than *1d.* a quart higher than that of ordinary milk, and in the poorest parts of London at a price which is not more than *2d.* a quart above the price of ordinary milk.

There remains the question, whether or not it is advisable that the people of this country shall admit that the pasteurisation of milk is the true remedy for the difficulties of the milk industry, as was constantly suggested at the conference, or whether, as a nation, we should not press forward to the true goal—namely, the provision of a fresh, clean milk free from disease, at a price which the consumer can pay. Such a policy is undoubtedly in the best interests of the farmers. It is also in the best interests of the consumers. The answer to this question is closely linked up with that of the true food value of fresh and heated milk.

A study of the work that has been carried out in recent years reveals certain facts which should be given grave consideration before a policy, from which it will be very difficult to retire is adopted. In considering this work it is important to remember that many of the problems connected with milk as the ideal food are complicated by the fact that no two human frames react equally: thus in the experiments on the vitamins one is faced by the fact that vitamins are stored in the body, and the number of months a child will flourish on that store will vary within a wide range. The difficulty, therefore, in assessing the true value of vitamins in milk and the amount of destruction by heat can be appreciated. That there is a danger of widespread pasteurisation affecting the health of children cannot be denied after reading Dr. E. A. Barton's paper in the *Journal of State Medicine* (1922) or the article by Prof. E. Widmark in THE LANCET of 1924, i., 1206. The latter drew attention to the widespread outbreak of xerophthalmia that occurred in Denmark owing to the excessive export of butter that took place from economic causes during and after the Great War. J. H. Hess in his work on "Scurvy Past and Present" shows that definite outbreaks of scurvy occurred in Berlin in 1901, when large pasteurisation plants were established, and again when homogenised milk came into use in Switzerland and France.

As Barton pointed out the diminished supply of vitamin from pasteurised milk can be made good by outside factors—e.g., fruit, cod-liver oil, &c.—but unfortunately all mothers have not the means or the opportunity thus to supplement their children's diet. In any event there is no evidence that these additions replace the alterations in the relationship between diffusible and non-diffusible lime salts which takes place on the heating of milk. Much valuable work is now being done on this question. Its importance to the growing child must not be overlooked as it may have an appreciable effect upon the satisfactory formation of the bones and upon the calcium content of the blood. H. E. Magee and Harvey, of the Rowett Research Institute, have shown that the calcium in milk is in two forms, one soluble or ionised and the other organically bound up with caseinogen in the form of a protein salt. They further show that chief danger in their use would seem to be injudicious and excessive application, especially where they are not confined strictly to the growth They do not, as a rule, separate the more organised apex of the chronic corn

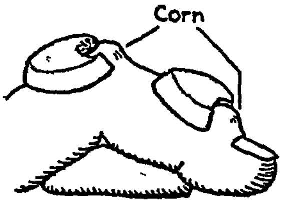
Another popular remedy is the corn ring made of felt spread with isinglass or the more tenacious zinc oxide or rubber adhesive The corn-ring often acts successfully as a temporary remedy, but, since it compresses the growth on all sides, is apt eventually to concentrate the centre of the growth so as to make it more painful than before This is less likely to occur when the anterior portion of the ring is thinned, leaving the proximal half as the protection In some forms the ring plaster has a salicylic disc placed in the cavity to cover the corn ; this has the advantage of localising the action of the acid

Operative Methods

The foot or toe should be properly cleansed and then painted well with tinct iodi mitis, which does not necessarily obscure the working; alternatively lint saturated with a 1 in 20 or 1 in 40 aqueous solution of carbolic acid may be applied in close contact with *the field of operation for at least five minutes* before working The last-named procedure is useful as it tends to lessen surface sensibility

Some chiropodists practise removing the corn in its entirety by the use of mouse-tooth forceps and scalpel, but this method is not very popular in Great Britain, where the general practice is to pare away the surface and excavate the corn even to its minute nucleus, this cannot always be managed at one operation, but it can be mostly done by the skilled manipulator who pays particular attention to making tense the soft tissues with the fingers of his left hand so that there is no impingement or drag on the surrounding sensitive tissue Lightness of touch is essential

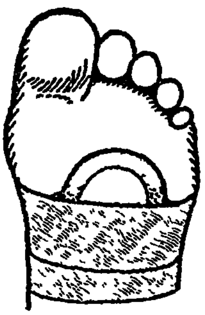
FIG 1



Showing pads and prop in position

(The figures are from "Practical Chiropody," The Scientific Press, Ltd)

FIG 2



Showing centre pad in position and the metatarsal strapping used to correct lateral spread

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Radical excision of the growth has been successfully performed by surgeons, but following this operation there have been occasional cases when minute corns have formed on the cicatrix, which have caused pain as intense as that produced by the original growth.

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A peculiar type of corn which is often found in persons with very dry skins consists of small nuclei about the size of a millet seed. These corns are usually multiple and may be distributed more or less uniformly over any part of the plantar surface of the foot They occur virtually irrespective of pressure and are *found especially* in people of mature age Sometimes small crystalline bodies may be found involved in the nuclei The heel and plantar arch are often the principal seat of this particular trouble These growths can be picked out individually, but the use of a mild salicylic plaster (5 per cent) covering the whole area for three or four days prior to operation greatly facilitates removal

Verrucæ

A type of growth which has something in common with, and is often mistaken for, an ordinary corn is a pathological condition of the prickle-cell layer known as *verrucæ* These pedic warts are most commonly found in growing children, but I have noticed that during and since the war many more adults have been subject to this trouble which, on the foot, is a source of great pain These warts are infectious, but I have *found that the successful cure of one attack of* verrucæ of the foot produces immunity from *others for many* years, if not permanently Trauma is one of the factors in producing these formations, they mostly grow on the fleshy parts of the foot, such as the plantar surface of the metatarso-phalangeal region and on the same area of the heel, but they may occur in other parts of the foot and are occasionally met with on the dorsum of the joints in the usual position of ordinary corns, at the apex of the toes, or even under the edges of the nails When the surface is cleared away by paring there is disclosed a spongy growth which shows the ends of elongated papillæ combined with soft cells As a consequence of the rapid proliferation of the cells of the rete Malpighii the papillæ are so crowded by this accumulation that they become attenuated and squeezed upward and downward, their capillaries being often obliterated, though not always, since, when the growth is pared, there may be slight hæmorrhage from its centre The sponge-like surface may be dotted here and there with small dark-red or blackish stains, and the growth has a rubber-like consistency There is usually a history of throbbing pain, especially on lowering the foot to the ground after a night's rest, on putting on a boot in the morning, and on immersion of the foot in hot water After the boot has been worn for some time the pain may get better Surgeons treat these cases by excision, radium, or X rays Chiropodists sometimes apply the minor forms of electricity if trained in its use, most of them use chemical escharotics such as nitric, *monochloracetic, trichloracetic, pyrogallic,* chromic, or salicylic acids When treating these cases the chiropodist makes a point of using removable pads judiciously adjusted in order to obviate any direct pressure

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CENTRAL ASSOCIATION FOR MENTAL WELFARE —*A special ten weeks' course for teachers of mentally defective* and of dull and backward children is to be held in London from May 2nd to July 9th under the direction of Miss Lucy Fildes Copies of the prospectus may be had from the offices *of the* Association at 24, Buckingham Palace-road, London, S W 1

Correspondence.

"Audi alteram partem"

ADOLESCENT ALBUMINURIA

To the Editor of THE LANCET

SIR,—Dr. H. H. Bashford's article in your last week's issue raises several interesting points, and it supports the current medical teaching as to the significance of adolescent albuminuria as illustrated by patients whom he has observed for 7 to 14 years. The condition under discussion is that of albuminuria occurring in young adults unaccompanied by any other signs of renal or constitutional disability. I would emphasise the importance of Dr. Bashford's opinion that "those cases in which albumin is consistently found in the after-rest specimen ought certainly to be regarded more stringently" than those in which the after-rest specimen is albumin-free. The opinion, thus expressed, is more conservative than is the statement in his fourth conclusion, "That in the great majority of cases the after-rest specimen is usually free from albumin."

I believe that the presence of albumin in the after-rest specimen distinguishes certain cases which might otherwise be diagnosed as suffering from adolescent or functional albuminuria; and I believe that in some of these cases the albuminuria is an expression of irritation of the renal parenchyma by bacterial toxins. They come properly, therefore, under the heading of toxæmic kidney. I think that I have seen albuminuria as the sole expression of abdominal tuberculous adenitis, and I believe that focal sepsis, such as occurs in chronic tonsillitis, is responsible for albuminuria in others. In these patients there has been a trace or faint trace of albumin in the after-rest specimen, but no cells or casts or other evidence in the present condition or past history to indicate renal or constitutional disability. These cases occupy an intermediate position clinically between functional albuminuria and Bright's disease.

I am, Sir, yours faithfully,

GEOFFREY EVANS.

Park square East, London, N.W., Dec. 27th, 1926.

THE INCUBATION PERIOD OF TUBERCULOSIS

To the Editor of THE LANCET

SIR,—We have in Plymouth a residential hostel for children, who are "contacts" in tuberculous families but are apparently healthy. The evidence afforded by the 20 years' work in France of Grancher, and more recently of Léon Bernard, Calmette, and others, confirms my own experience, as tuberculosis officer in Plymouth, of the frequency of "personal" infection. Under our national system of tuberculosis schemes we have a regular examination of all "contacts," and it is difficult to understand why public health committees do not more often permit tuberculosis officers to send selected cases to such hostels or to board them out, thus minimising the risk of infection of the coming generation which arises from intimate association with "open" or advanced tuberculosis in overcrowded premises. My immediate object in writing is to obtain, if possible, reliable statistics of the incubation period or periods of pulmonary and other forms of tuberculosis in man and animals. The periods may vary, as far as my notes of cases show, with the type of tuberculosis with the organs, systems, or structures involved (e.g., a few weeks in the meninges, many months or years in the lungs and the joints), and with age and sex. Such variability in the periods between primary infection and clinical manifestation is, of course, common to many bacterial diseases, such as leprosy. I should be content with obtaining approximate statistics which may assist those who are attempting to educate the public in this important preventive measure. I am, Sir, yours faithfully,

F. G. BUSHNELL, M.D., C.C.

Plymouth, Dec. 24th, 1926.

PASTEURISATION OF MILK

To the Editor of THE LANCET

SIR,—The recent correspondence under this heading in your columns did not exhaust the question of the effect of heat upon milk, to which I should like to return. Various speakers at the National Milk Conference held in November last seemed to think that clean milk from tested herds must necessarily be an expensive article and that all milk that was not produced from tubercle-free herds must be pasteurised. If these assumptions are true, then it necessarily follows that the milk-supply in our large centres of population will be reduced to the position of those found in New York—namely, 2 per cent. of the supply is Certified Milk sold at a price which makes it a fancy article and 98 per cent. is pasteurised. In England, on the other hand, it is possible to sell Grade A (tuberculin-tested) milk in our provincial towns at a price which is not more than 1*d.* a quart higher than that of ordinary milk, and in the poorest parts of London at a price which is not more than 2*d.* a quart above the price of ordinary milk.

There remains the question, whether or not it is advisable that the people of this country shall admit that the pasteurisation of milk is the true remedy for the difficulties of the milk industry, as was constantly suggested at the conference, or whether, as a nation, we should not press forward to the true goal—namely, the provision of a fresh, clean milk free from disease, at a price which the consumer can pay. Such a policy is undoubtedly in the best interests of the farmers. It is also in the best interests of the consumers. The answer to this question is closely linked up with that of the true food value of fresh and heated milk.

A study of the work that has been carried out in recent years reveals certain facts which should be given grave consideration before a policy, from which it will be very difficult to retire is adopted. In considering this work it is important to remember that many of the problems connected with milk as the ideal food are complicated by the fact that no two human frames react equally; thus, in the experiments on the vitamins one is faced by the fact that vitamins are stored in the body, and the number of months a child will flourish on that store will vary within a wide range. The difficulty, therefore, in assessing the true value of vitamins in milk and the amount of destruction by heat can be appreciated. That there is a danger of widespread pasteurisation affecting the health of children cannot be denied after reading Dr. E. A. Barton's paper in the *Journal of State Medicine* (1922) or the article by Prof. E. Widmark in THE LANCET of 1924, i., 1206. The latter drew attention to the widespread outbreak of xerophthalmia that occurred in Denmark owing to the excessive export of butter that took place from economic causes during and after the Great War. J. H. Hess in his work on "Scurvy Past and Present" shows that definite outbreaks of scurvy occurred in Berlin in 1901, when large pasteurisation plants were established, and again when homogenised milk came into use in Switzerland and France.

As Barton pointed out, the diminished supply of vitamin from pasteurised milk can be made good by outside factors—e.g., fruit, cod-liver oil, &c.—but unfortunately all mothers have not the means or the opportunity thus to supplement their children's diet. In any event there is no evidence that these additions replace the alterations in the relationship between diffusible and non-diffusible lime salts which takes place on the heating of milk. Much valuable work is now being done on this question. Its importance to the growing child must not be overlooked, as it may have an appreciable effect upon the satisfactory formation of the bones, and upon the calcium content of the blood. H. E. Magee and Harvey, of the Rowett Research Institute, have shown that the calcium in milk is in two forms, one soluble or ionised, and the other organically bound up with caseinogen in the form of a protein salt. They further show that the percentage of diffusible CaO present in fresh milk is 26.1 per cent., in pasteurised milk (i.e., milk held at 70° C. for 30 minutes) is 20.4 per cent., and in boiled milk (i.e. a flask of milk immersed in a water-bath at boiling-point for one hour) is 15.7 per cent.

Dr. A. T. R. Mattick has kindly permitted me to make use of as yet unpublished details of work which is being carried out on the effect of heat on the diffusible calcium of milk. A long series of experiments has been carried out at temperatures which ranged from 105° to 210° F. In each experiment the milk was held at a temperature which did not vary more than 5 degrees. In every case the amount of diffusible calcium was diminished and the coagulation time of the heated milk when treated with rennet was prolonged as the temperature rose, until at a temperature of 205° to 209° F. no true coagulation took place. In New York an investigation by W. S. Ladd, Ewarts, and Franks on the relative efficiency of Certified and pasteurised milk for infant feeding was made. It was found that Certified raw milk alone without the addition of orange-juice or cod-liver oil produced a greater increase of body-weight in babies than did pasteurised milk alone or when pasteurised milk was combined with orange-juice and cod-liver oil. The table is as follows:—

—	No. of months observed	Weight development— At entrance	Weight development— At one year	Weight development— Gain in percentage
		Per cent.	Per cent.	Per cent.
Group I. (61 cases) Grade A pasteurised Cod liver oil 0 Orange juice 0	6.9	82.1	83.8	1.7
Group II. (59 cases) Grade A pasteurised Cod liver oil 0 Orange juice +	7.2	82.2	90.1	7.9
Group III. (72 cases) Grade A pasteurised Cod liver oil + Orange juice +	7.0	80.2	89.7	9.5
Group IV. (17 cases) Certified milk, raw Cod liver oil 0 Orange juice 0	6.8	80.0	94.0	14.0

This table shows that the normal development of the babies as judged by weight increased 14 per cent. on Certified raw milk against 1.7 per cent. on pasteurised milk alone, 7.9 per cent. on pasteurised milk with the addition of orange-juice, and 9.5 per cent. on pasteurised milk with the addition of orange-juice and cod-liver oil. A. L. Daniels and G. Stearns, of the Iowa Child Welfare Research Centre, found that in experiments on rats, that when the rats were fed on pasteurised milk their growth was half the normal. According to them this was due to the precipitation of calcium, the calcium adhering to the sides of the vessel in which the milk was pasteurised. If, however, the vessel was washed after the milk had been poured out, and the washings added to the milk, then the growth of the rats was normal. In the Iowa Welfare Centre it was found that babies fed on pasteurised milk (milk held at 145° F. for 30 minutes) did not increase in weight. This was found to be again due to the loss of diffusible calcium in the pasteurised milk. This was proved by the fact that the stools of the babies fed on pasteurised milk contained more total calcium than those fed on milk that had been heated to 145° F. and then immediately cooled.

From the above few observations it may be acknowledged that the pasteurisation of milk is not ideal and that the indiscriminate use of pasteurised milk by the great majority of the population is not to be recommended.

I am, Sir, yours faithfully,
C. MADDOCK, C.I.E., M.D.,
Lieut.-Col. I.M.S. (ret.), Hon. Sec., Grade A (Tuberculin Tested) Milk Producers' Association.

THE PRACTICE OF PATHOLOGY

To the Editor of THE LANCET.

SIR,—May we draw attention to the fact that a meeting will be held at the London School of Medicine for Women at 2.30 P.M. on Friday, Jan. 7th, for the purpose of considering the advisability of forming a society to represent the interests of those engaged in the practice of pathology?

There is general agreement among those engaged therein that the conditions of pathological practice throughout the country are very unsatisfactory, and are in danger of becoming more so. The competition for pathological work on the part of subsidised institutions of various sorts, both academic and commercial, and of local authorities, and the resultant cutting of fees, is threatening to reduce the remuneration from pathological work to such an extent that little inducement will be offered to competent men to enter this important branch of medical practice. The present state of pathological practice, moreover, offers little encouragement to non-teaching hospitals to attempt to bring their pathological departments to a state of efficiency. It is in the general interest of medicine that pathological knowledge should be as widespread as possible, and not confined to the teaching centres.

Up to the present pathologists as a class have had no organisation to represent their interests. The need for such a body appears to be urgent, and we, therefore, hope that all those interested who can manage to do so will attend the meeting.

We are, Sir, yours faithfully,
H. A. COOKSON,
Royal Infirmary, Sunderland.
J. B. DAVEY,
General Hospital, Cheltenham.
S. C. DYKE,
Wolverhampton and Staffordshire Hospital, Wolverhampton.
C. E. JENKINS,
Salford Royal Hospital, Salford.
C. POWELL WHITE,
Victoria University, Manchester.
A. RENSHAW,
Ancoats Hospital, Manchester.
A. G. SHERA,
Princess Alice Memorial Hospital, Eastbourne.
A. F. S. SLADDEN,
General Hospital, Swansea.
R. V. SOLLY,
Royal Devon and Exeter Hospital, Exeter.
E. WORDLEY,
South Devon and East Cornwall Hospital, Plymouth.
A. F. WRIGHT,
Coventry and Warwickshire Hospital, Coventry.

Dec. 21st, 1926.

MEDICINE OR SURGERY FOR THE OCULIST?

To the Editor of THE LANCET.

SIR,—"Incipiens," in his letter of Dec. 4th, has taken the wrong point of view. It is not a question of what form of education would be best for an oculist or best for ophthalmology, but what form of test shall be applied to reduce the number of would-be oculists.

It is useless to argue that a medical education is more suitable for an oculist than a purely surgical one, or that the ophthalmic problems awaiting solution are mainly medical. The hospital appointments are few, and it is obvious that some test must be introduced to keep the numbers of applicants within bounds. The attempt to settle the question on the merits and attainments of the applicants would be much too onerous a labour for any medical committee. For it matters not what the applicant's ophthalmic qualifications may be, if he have not the Fellowship the merest tyro in ophthalmology with the Fellowship will get the appointment before him.

The tragedy is that men are encouraged to take up ophthalmology in order to obtain their services as clinical assistants and house surgeons, and then, no matter what their attainments, their further progress is debarred, not by an examination in ophthalmology but by a purely surgical examination Surely it is time that the whole question of hospital appointments, not only in ophthalmic hospitals, but in other specialties, should be reconsidered. The distinction between medicine and surgery in any specialty is artificial and detrimental to its best interests but to debar men of proved ability by an examination test is the height of injustice

The insistence on the Fellowship as an essential to an ophthalmic post is injurious to ophthalmology, and deprives London of some of the best men

I am, Sir, yours faithfully,

Dec 20th, 1926 Respiciens

LOSS OF MEMORY

To the Editor of The Lancet.

Sir,—In your leading article of Dec 25th, 1926, you refer to Dickens's story of Dr Manette It is of interest to note that Spinoza (whose anticipation of modern psychological theories is, in many instances, remarkable) relates the case of a Spanish poet who as the result of an illness, suffered from what we should term a dissociation of personality ("Ethica," Part IV, Prop 39, Scholium) It seems probable that such a dissociation of personality, due to a break in the continuity of consciousness may be the cause of the change of character which so often follows an attack of encephalitis lethargica

I am, Sir, yours faithfully,

Birmingham, Dec 27th, 1926 M Hamblin Smith.

TUBERCULOSIS OF THE KIDNEY

To the Editor of The Lancet

Sir,—With reference to the article by Mr White and your leading article on the same subject, I think it is important to point out (1) that operation is not necessary to make a diagnosis of hidden tuberculosis of the kidney, such cases can be diagnosed quite easily by tuberculin reactions and cured with tuberculin alone, (2) when the disease is open there is nearly always a mixed infection and it is absolutely essential to treat this with an autogenous antigen If I am not mistaken as to the case referred to by Mr Pringle and Sir W Taylor, he had both a *B coli* and a *Staphylococcus aureus* infection for which a mixed antigen was used

In my experience it is only rarely that these cases call for surgical interference—e g if there is a perirenal abscess which must be drained or when in a unilateral case the kidney has become completely disorganised With our present resources of diagnosis and treatment such cases should not occur

I am, Sir, yours faithfully,

W M Crofton

Laboratory of Special Pathology, University College,
Dublin, Dec 28th, 1926

Donations and Bequests —Under the will of the late Miss Fanny Sarah Longman, of Cliveden-terrace, Eaton-square, S W, the testatrix left £1000 each to the Chelsea Hospital for Women, the Disabled Soldiers' Hospital, Richmond, the National Institute for the Blind St. Dunstan's Hostel, the British Red Cross Society, the Hospital Sunday Fund and the Church Army, £300 to Dr Barnardo's Homes £200 each to the Infant Asylum, Wanstead, the Royal London Ophthalmic Hospital the Great Ormond street Hospital for Children the School for the Indigent Blind Leatherhead the Church of England Waifs and Strays Society, Queen Charlotte s Hospital Marylebone road, the Cripples' Home, Marylebone-road the Hospital for Women Soho, the National Lifeboat Institution, the Royal Hospital for Incurables, Putney, St Giles' Christian Mission, the Earlswood Asylum the Royal Albert Orphan Asylum, the Cancer Hospital Fulham, the Hospital for Consumption Brompton, the Hostel of God—Free House for Dying, Clapham Common, the City of London and West London Dispensary, the Miller Hospital, Greenwich the Royal Asylum of St Anne's Society, the Society for the Prevention of Cruelty to Animals, and the London City Mission

Obituary.

JOSEPH EBENEZER ADAMS, M S Lond, F R C S Eng

The death of Mr Joseph Adams on Dec 21st removes a London surgeon whose qualities were justly respected He gave loyal service to St Thomas s Hospital and to the East London Hospital for Children and his premature death will be generally regretted by those who worked with him

Mr J E Adams

Born in 1878, Joseph Adams was the fifth son of William Adams who was a City merchant He was educated at the City of London School, and won a scholarship at St Thomas's Hospital, where he soon made his mark as a student He qualified in 1902 and became a Fellow of the Royal College of Surgeons a couple of years later From 1905 until 1909 he held the post of surgical registrar and resident assistant surgeon at St Thomas's Hospital and soon afterwards he was elected surgeon to the East London Hospital for Children Shadwell, at the time of his death Mr Adams was senior surgeon to this institution, in which he took a great interest In 1913 he was appointed assistant surgeon to St Thomas's Hospital and in the same year delivered a Hunterian lecture [1] on peritoneal adhesions, to the Royal College of Surgeons This described some of the experimental work which he had already begun and which was to continue until his death Most of his research was devoted to abdominal conditions and it always showed the thoroughness and attention to detail which were characteristic of him Not long before the war in collaboration with Dr M A Cassidy, he wrote a book on acute abdominal diseases, and this he subsequently revised and enlarged, so that it became a valuable text-book for students A second Hunterian lecture given at the Royal College of Surgeons last year, continued further results of his investigations of the abdomen and dealt with the surgery of the jejunum He was interested, however, in many other branches of surgery, and will be remembered for his advocacy of wider education of the public concerning the nature and control of cancer He did not feel certain that the medical profession was doing all that might be expected to combat the disease. "Personally," he once said, "I would rather spend my time reassuring patients who have not got cancer than operating on those who have," and he thought that more money should be spent on propaganda, "so that the sick person shall no longer attribute to the hand of God what is probably due to the carelessness of man."[2] He was often to be seen at meetings of the Association of Surgeons, of which he was an original member, and of the surgical and other sections of the Royal Society of Medicine. His opinions were always given clearly, concisely, and to the point—whether at meetings of societies or in his contributions to medical journals. The same care and deliberation were apparent in his operative work as in his writing, for they were a part of his personality. He was enthusiastic about teaching at St Thomas's, and his own clear thinking allowed him to present his subject in a logical manner. His qualities as a man were obvious. "Adams never shirked his hospital work," writes a colleague. "He was a man of character with high ideals and he considered that the training of his house surgeons and his dressers was a duty not to be lightly undertaken. . . All through his life absolute straight dealing and integrity were the dominating features of his character. In the early days when he was resident assistant surgeon he was looked up to and trusted by College House. It would have been impossible for Adams to do a mean or crooked action. He was generous both in his thoughts and actions, a characteristic which was never paraded, for, being a sensitive and reserved man, he sometimes cloaked his real feelings under a veil of sarcasm. His tragic death at the early age of 48 is a real loss to the profession, to the hospitals at which he worked, and to his friends."

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[1] The Lancet, 1913, i, 663

Mr Adams often carried on his work under considerable physical disability which proved due to a congenital diaphragmatic hernia. Symptoms arose from it which prevented his serving overseas during the late war, and he is said to have felt the restriction keenly. As a student he played cricket for St Thomas's, and later he took up golf, but in the latter part of his life his favourite recreation was to visit his cottage at Penshurst, where he gardened enthusiastically, and nothing gave him greater pleasure than to get his friends and his students to go with him. Mr Adams married, in 1913, Muriel, youngest daughter of the late Mr Harry Webb, of Chislehurst, and she survives him.

THOMAS S PIGG STRANGEWAYS,

M A CAMB, M R C S ENG

WE have to record that Dr T S P Strangeways died on Dec 23rd at Cambridge, where he was lecturer on special pathology in the University. Originally named Strangeways Pigg, he received his medical education at St Bartholomew's Hospital in the early nineties of last century. Even as a student he suffered from a degree of deafness which would have deterred most men from attempting a medical career, and this disability, together with his retiring character, was doubtless the reason why he attracted little notice as a student. He gained, however, one hospital distinction—namely, the Matthews Duncan gold medal in obstetrics—which was awarded to him in 1896. In the same year he took the examination of the Conjoint Board, never having aimed at a University degree. It was probably the most fortunate circumstance in his life that just at this period he came under the influence of A A Kanthack, then recently appointed lecturer on pathology at St Bartholomew's. Kanthack had a good eye for ability, and he recognised in this quiet and unassuming student capacities which had escaped the notice of others—a notable keenness and a great power for hard work. Strangeways was made junior curator of the museum at the hospital, and worked under Kanthack until early in 1897, when the latter was called to the chair of pathology at Cambridge. Not many months had elapsed before Strangeways followed Kanthack to the University to act as his demonstrator. The time that followed was the happiest period of his life. He could never have succeeded in general practice owing to his deafness, but this affliction was little bar to teaching and none to research. He settled down in Cambridge to a steady career of teaching and laboratory work in which his abilities found full scope, and he soon became a well-established figure in the Cambridge Medical School. At the beginning of this century pathology was not yet divided up into the several compartments which we see to-day. Strangeways taught morbid anatomy and histology, bacteriology, and clinical pathology. He was an excellent and popular teacher, in spite of a certain brusqueness of manner; he got to know his men and he remembered them in after life; they responded by developing a real affection for him. For the use of his classes he prepared a small laboratory handbook which ran through seven editions. When the Cambridge Research Hospital was founded, largely through his own efforts, Strangeways naturally became its director, and carried on his extensive research without any material cessation of his teaching work. The subject chosen for investigation at the new hospital was chronic arthritis, and into its study Strangeways threw himself for many years with eager enthusiasm. It was hoped that the intensive scientific examination of this confused and protean condition would lead to the solution of some at least of the many problems of its causation and treatment. Strangeways and his colleagues did indeed learn much of the disease and arrived at a certain classification; they summarised their conclusions in a series of 48 categorical statements,[3] but it was certainly a disappointment that the great amount of labour devoted to the subject did not prove more fruitful.

DR STRANGEWAYS

For the last few years of his life Strangeways turned to a new study—the study of tissue culture. Here he attained results commensurate with his efforts, and became perhaps the leading exponent in this country of the delicate technique required; those who saw the preparations—illustrating the development of the limb bud and of the eye in vitro—shown during the past two years at the Royal Society, realised what a master of the art he had become. During these last years he had collected around him five whole-time workers at Cambridge and was associated also with a team of workers at St Bartholomew's Hospital who were engaged in the study of the action of radium and X rays on living cells, for which he provided all the tissue cultures needed. The fruits of this combined research have been in part published, but much remains to be done.

Strangeways died in harness, going straight from the laboratory to his last sickbed. By a curious irony the last lecture which he ever delivered was on Death and Immortality, and he illustrated it by a preparation bearing marvellous witness to his technical skill—a living culture of tissue made from a sausage purchased in the town.

During the late war he acted for the War Office as Government inspector of pathological laboratories. He married a daughter of the late Edward Anthony Beck, master of Trinity Hall, Cambridge, and leaves his widow with seven children.

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[2] THE LANCET, 1922, ii, 639

[3] THE LANCET, 1918, ii, 621

Medical News.

UNIVERSITY OF OXFORD —At recent examinations the following candidates were successful in the undermentioned subjects of the examination for medical and surgical degrees —

Medicine, Surgery, and Obstetrics —Grace Batten, Rosaleen L Graves, Michael D Bower, Clarence S Broadbent, John G A Davel, Cecil W Flemming, Leslie O F Fysh, Arthur H Gale, Charles L Harding, Reginald A Hawthornthwaite, Richard C Hodges Otto Hooper, Charles W Hope Gill, Robert Illingworth, Thomas M Ling George E Macdonald, Robert G MacGregor, Charles W Mackenzie, Patrick C Mallam, Frederick G Parker, William F H Ray William D B Read, Douglas A Robertson, and Edward M Wright

Forensic Medicine and Public Health —Grace Batten, Lewis W H Bertie W H Brown, Richard T V Clarke, Cuthbert L Cope, John G A Davel, Cecil W Flemming Leslie O F Fysh, Arthur H Gale, Otto Hooper, Charles W Hope-Gill, Robert Illingworth, George L M Inkster George E Macdonald, Robert G MacGregor Charles W Mackenzie, Robert C Probyn-Williams, Jack W Pugh, William F H Ray, and Douglas A Robertson

Pathology —Henry H Aitchison, Albert R Bowtell, Harold A Byworth George Campbell Charles F J Cropper, John G A Davel Charles R Greene Richard M J Harper, George E Macdonald John K Marshall, Malcolm G Pearson, Lindsay T Ride, and Hill G Wells

Materia Medica —Florence H Johnson, Caroline E MacNeice, Albert R Bowtell, Charles F J Cropper, Richard C Hodges Albert P Kingsley Ronald Nutt, Hedley G Pritchard, Eric E Swaby, Llewelyn H Thomas, and John W de W G Thornton

UNIVERSITY OF CAMBRIDGE —At recent examinations the following candidates satisfied the examiners in the undermentioned subjects —

THIRD EXAMINATION FOR DEGREE OF M B , B CH

Part I , Surgery, Midwifery, and Gynæcology —I Caley, G M B Morgan K A Muir, C J Ormerod, R G Apthorpe, E S Bolton, H T Cox, A T Curnow, R D Curran, K E D Dauncey, A A Digges La Touche, M G Fitzgerald, F H Gillett, H K Goadby, F Goldby, V C J Harris, J A Hartley A S Hollins, F S Hubbersty, C E Kellett F Kellett, R L Lancaster, C J Laviers, R M B MacKenna, B W S Mackenzie, T F McNair Scott, S R Matthews, G C Milner, E A Nicoll, C L Owen, G E Parker R Pearce, R A Phillips C L Potts, L W Proger, W P Purvis J H Randall, D N Roevn-Jones R P Ross N L Russell, H W Sadlier E M Shackel, L A P Slinger, H Smith W E Snell, J F Stent, C I Tuckett S Tyagaraja, C W Walker, R Watson, C G Windsor, and C E Woodrow

Part II , Physic, Pathology, and Pharmacology —M G P Reed, D S Tait, A Barnsley P G Bentlif, B H Burns G P Chandler, A B Connell, J W E Cory, F M Deighton, M S Dewhurst, H M Elliott R W B Ellis, V H Ellis, H W Gordon, E J Greenwood, J C P Grey, T L Griffiths, W S Grove C H Hilliard, A J Johnson, F W Law, A V Mackenzie, B W S Mackenzie, R Marnham, J G Milner J W Monro, J L Morgan, J Morris, R T Mummery, H E Nourse G E Parker C P Pinckney, C G E Plumstead, J D Procter, J H Randall, D Riley, F C Roles, C J L Sharp D G Shields, W E Snell, G F Taylor, and F H A Walker

UNIVERSITY OF DURHAM —At the Convocation held on Dec 18th the following degrees and diplomas were conferred —

DOCTOR OF MEDICINE

Alexander P Cawadias and Edward R Griffiths

MASTER OF SURGERY

Robson C Brown

BACHELOR OF MEDICINE AND SURGERY

Leonard Barber Ethel Browell Samuel Carnofsky William A Carruthers, Robert R Dodd Douglas Ewart Lawrence Livingston Milton A S Margu, Arthur F H Marsden Henry O Martin Ernest H Moseley, Julius Niman Hugh O Connor, Ronald Russell Alex L G Simpson, Ralph B S Smith Norman Spark, Ernest P Tulloh, James H Weir, and Frederick Young

BACHELOR OF HYGIENE

Doris H Motyer Patrick J O Connell, and Ralph F Tredre

DIPLOMA IN PUBLIC HEALTH

Doris H Motyer, Patrick J O Connell and Ralph F Tredre

LICENCE IN DENTAL SURGERY

Sidney Craven

UNIVERSITY OF LEEDS —At recent examinations the following candidates were approved —

M D

J Cardis A M Clay, and F W M Greaves

FINAL EXAMINATION FOR M B , CH B

Part I —J V Allen S Bregman L Brill J W L Crosfill H W Davis J Donovan, L B Flather, S K Foster, L Godlove, Dorothy Halstead, P Hampshire, R C Hanson, L B Heseltine, H Hopkinson, J H Khan, Esther M Killick, W E L Lawson, J Leibermann, J O'Donnell, T L Owen, N Pvecroft, R J H Raines, D R Riddell, Doreen M Robertshaw, A C Shuttleworth, L Silman, V P Squire, J O Terry, and J E H West

Part II —Mary Lightowler, W Milligan, A L Mitchell, A Shufleder, R P Viret, and J Walker

Part III —Rosie B Becker, I Berenblum, I D Black, T H Carr, G F Dimmock, J S Dinsdale, H G Garland (distinction in medicine), R C D Hann, Marjorie Haynes, I Kovolman, H A Ledgard S L Lord, G H Lowe, T H Monies, G Thompson, R P Viret, and J Walker

D P H

G R Baxter

D P M

H Edelstein, K C L Paddle, and J Russell

The West Riding Panel Practitioners' prize in medicine has been divided between H G Garland and S J Hartfall The Littlewood Prize in anatomy has been awarded to P R Allison

MEDICAL SOCIETY OF LONDON —The second half of the session will open on Jan 10th at 8 30 P M with a presidential address by Sir Humphry Rolleston on Changes in the Clinical Aspects of Disease, to be followed by a discussion On Jan 24th there will be a pathological evening, and on Feb 7th a discussion on Poliomyelitis will be opened by Dr Francis Walshe, Dr Mervyn Gordon, F R S , and Sir Thomas Horder The Lettsomian Lectures will be delivered on Feb 21st, March 9th, and March 21st at 9 P M , by Mr Donald Armour, his subject being the Surgery of the Spinal Cord and Membranes Other arrangements for the session include a discussion on Acute Abdominal Emergencies complicating Pregnancy and the Puerperium, to be opened by Dr J S Fairbairn on Feb 28th, and a demonstration of Lipiodol Injections by Dr Jacques Forestier on March 14th The annual oration is to be given by Prof Harvey Cushing on June 13th

Medical Diary.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street

WEDNESDAY, Jan 5th —5 30 P M , COMPARATIVE MEDICINE TROPICAL DISEASES, AND PARASITOLOGY Special Joint Discussion on Trypanosomiasis in Man and Animals, to be opened by Dr W H Andrews Dr J Gordon Thomson, Mr A L Sheather, and Dr P Manson-Bahr Other speakers will also take part in the Discussion 8 30 P M , SURGERY Discussion on Abdominal Tubercle Openers Mr H W Carson and Mr V Zachary Cope (Surgery), Dr Maurice Cassidy (Medicine) MEDICINE Members of the Section of Medicine are cordially invited

NORTH-EAST LONDON CLINICAL SOCIETY

WEDNESDAY, Jan 5th —4 15 P M (*at the Prince of Wales's General Hospital, N*) Discussion, Puerperal Sepsis Speakers Mr A E Giles, Mr T H C Bemans, Mr A Goodwin, and Dr D Kirkhope

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY Jan 3rd —10 A M , Mr MacDonald Genito-Urinary Operations 2 P M , Mr Donald Armour Operations

TUESDAY —10 A M , Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M , Mr Sinclair Surgical Out patients

WEDNESDAY —2 P M , Mr Tyrrell Gray Operations 2 P M Dr Owen Medical Out patients

THURSDAY —2 P M Mr Bishop Harman Eye Department 3 P M , Sir Henry Simson Gynæcological Wards 4 P M Dr Snowden The Development of the Mind

FRIDAY —10 30 A M , Dr Dowling Skin Dept 1 1 A M , Dr Pritchard Modren Methods in Medicine 2 P M , Mr Vlasto Throat Nose and Ear Dept

SATURDAY —9 30 A M Dr Burnford Bacterial Therapy 10 A M Mr Banks Davis Operations on Throat, Nose, and Ear

Daily 10 A M to 5 P M Operations, Medical Surgical, and Special Out patient Departments, Saturdays, 10 A M to 1 P M

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE

TUESDAY Jan 4th —3 15 P M , Mr L E Barrington Ward Gall stones

POST GRADUATE HOSTEL, Imperial Hotel, Russell square, W C

TUESDAY Jan 4th —9 P M , Dr C E Goddard Lord Lister, by one who knew him

THURSDAY —Mr Philip Turner *Imperfect Descent of the Testis* might be expected to combat the disease "Personally," he once said, "I would rather spend my time reassuring patients who have not got cancer than operating on those who have," and he thought that more money should be spent on propaganda, "so that the sick person shall no longer attribute to the hand of God what is probably due to the carelessness of man "[2] He was often to be seen at meetings of the Association of Surgeons, of which he was an original member, and of the surgical and other sections of the Royal Society of Medicine His opinions were always given clearly, concisely, and to the point—whether at meetings of societies or in his contributions to medical journals The same care and deliberation were apparent in his operative work as in his writing, for they were a part of his personality He was enthusiastic about teaching at St Thomas's, and his own clear thinking allowed him to present his subject in a logical manner His qualities as a man were obvious "Adams never shirked his hospital work," writes a colleague "He was a man of character with high ideals and he considered that the training of his house surgeons and his dressers was a duty not to be lightly undertaken . . . All through his life absolute straight dealing and integrity were the dominating features of his character In the early days when he was resident assistant surgeon he was looked up to and trusted by College House It would have been impossible for Adams to do a mean or crooked action He was generous both in his thoughts and actions, a characteristic which was never paraded, for, being a sensitive and reserved man, he sometimes cloaked his real feelings under a veil of sarcasm His tragic death at the early age of 48 is a real loss to the profession, to the hospitals at which he worked, and to his friends"

Mr Adams often carried on his work under considerable physical disability which proved due to a congenital diaphragmatic hernia Symptoms arose from it which prevented his serving overseas during the late war, and he is said to have felt the restriction keenly As a student he played cricket for St Thomas's, and later he took up golf but in the latter part of his life his favourite recreation was to visit his cottage at Penshurst, where he gardened enthusiastically, and nothing gave him greater pleasure than to get his friends and his students to go with him Mr Adams married, in 1913, Muriel, youngest daughter of the late Mr Harry Webb, of Chislehurst, and she survives him

THOMAS S PIGG STRANGEWAYS,

M A Camb, M R C S Eng

We have to record that Dr T S. P Strangeways died on Dec 23rd at Cambridge, where he was lecturer on special pathology in the University Originally named Strangeways Pigg, he received his medical education at St Bartholomew's Hospital in the early nineties of last century Even as a student he suffered from a degree of deafness which would have deterred most men from attempting a medical career, and this disability, together with his retiring character, was doubtless the reason why he attracted little notice as a student He gained, however, one hospital distinction—namely, the Matthews Duncan gold medal in obstetrics—which was awarded to him in 1896 In the same year he took the examination of the Conjoint Board, never having aimed at a University degree It was probably the most fortunate circumstance in his life that just at this period he came under the influence of A A Kanthack, then recently appointed lecturer on pathology at St Bartholomew's Kanthack had a good eye for ability, and he recognised in this quiet and unassuming student capacities which had escaped the notice of others—a notable keenness and a great power for hard work Strangeways was made junior curator of the museum at the hospital, and worked under Kanthack until early in 1897, when the latter was called to the chair of pathology at Cambridge Not many months had elapsed before Strangeways followed Kanthack to the University to act as his demonstrator The time that followed was the happiest period of his life He could never have succeeded in general practice owing to his deafness, but this affliction was little bar to teaching and none to research He settled down in Cambridge to a steady career of teaching and laboratory work in which his abilities found full scope, and he soon became a well-established figure in the Cambridge Medical School At the beginning of this century pathology was not yet divided up into the several compartments which we see to-day Strangeways taught morbid anatomy and histology, bacteriology, and clinical pathology He was an excellent and popular teacher, in spite of a certain brusqueness of manner, he got to know his men and he remembered them in after life, they responded by developing a real affection for him For the use of his classes he prepared a small laboratory handbook which ran through seven editions When the Cambridge Research Hospital was founded, largely through his own efforts, Strangeways naturally became its director, and carried on his extensive research without any material cessation of his teaching work The subject chosen for investigation at the new hospital was chronic arthritis, and into its study Strangeways threw himself for many years with eager enthusiasm It was hoped that the intensive scientific examination of this confused and protean condition would lead to the solution of some at least of the many problems of its causation and treatment Strangeways and his colleagues did indeed learn much of the disease and arrived at a certain classification, they summarised their conclusions in a series of 48 categorical statements,[3] but it was certainly a disappointment that the great amount of labour devoted to the subject did not prove more fruitful

DR STRANGEWAYS

For the last few years of his life Strangeways turned to a new study—the study of tissue culture Here he attained results commensurate with his efforts, and became perhaps the leading exponent in this country of the delicate technique required, those who saw the preparations—illustrating the development of the limb bud and of the eye in vitro—shown during the past two years at the Royal Society, realised what a master of the art he had become During these last years he had collected around him five whole-time workers at Cambridge and was associated also with a team of workers at St Bartholomew's Hospital who were engaged in the study of the action of radium and X rays on living cells, for which he provided all the tissue cultures needed The fruits of this combined research have been in part published, but much remains to be done

Strangeways died in harness, going straight from the laboratory to his last sickbed By a curious irony the last lecture which he ever delivered was on Death and Immortality, and he illustrated it by a preparation bearing marvellous witness to his technical skill—a living culture of tissue made from a sausage purchased in the town

During the late war he acted for the War Office as Government inspector of pathological laboratories He married a daughter of the late Edward Anthony Beck, master of Trinity Hall, Cambridge, and leaves his widow with seven children

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[2] The Lancet, 1922, ii, 639

[3] The Lancet, 1918, ii, 621

HEALTH AND SICKNESS IN THE NURSERY

ANY book offered to the mothers of the nation by Dame Mary Scharlieb is likely to be gratefully received by them as an aid to the recognition of children's ailments, and an indication of the more elementary forms of nursery treatment The first chapters of Health and Sickness in the Nursery[1] give general information on the characteristics and requirements of infants and small children The rest of the volume consists of an outline of the symptomatology and the elements of treatment of most of the diseases met with in childhood The book may claim to meet the requirements of the mothers of the Empire since plague cholera, and yellow fever are among the nursery complaints described Perhaps the most useful chapter is the one containing an account of the symptoms produced by various common poisons, and their immediate treatment

SWEDISH RACE-HYGIENE

Mr Bernard Shaw recently expressed a wish that the value of the Nobel Prize refused by him should be devoted to the diffusion of knowledge of things Swedish in England The Swedes, however, are perhaps the most self-conscious and best self-advertised among the Nordic nations It is only a few years since two eminent scientific Swedes published an exhaustive account of what in Sweden is termed race-hygiene, a term not yet in use here The full title of the book is "The Swedish Nation in Word and Picture A Jubilee Book given out with the Coöperation of Experts commissioned by the Swedish Society for Race-Hygiene By H Lundborg, M D, Professor, Upsala and J Runnström, D Ph, Lecturer at the University of Stockholm" It was published at Stockholm in 1921, and with its many illustrations of fine Swedish race-types, ranging from nobles and bishops to singularly distinguished-looking peasants it is really a delightful book to peruse and possess It does not, however, appear to have been circulated to any but learned institutions in England, and it was not reviewed in these columns

From the days of the Reformation which took such firm hold of the country that Lutheranism there has often proved a form of clerical fanaticism Sweden has striven by every form of State interference to improve or safeguard an already excellent racial stock. The Gothenburg system an early form of partial Prohibition, need not be more than mentioned, but what is not so well known as it deserves to be is that the Swedish census is the oldest known census in Europe It dates from early in the seventeenth century when it was permissive and in the hands of the all-powerful but well-instructed Lutheran clergy, and so minute and searching is the information it supplies that it is possible to trace with its help the incidence of forgotten epidemics Another old glory of grandmotherly legislation is the royal enactment of date 1734 (in force till 1915), forbidding epileptics to marry The law, it appears, was beneficently stretched to include sufferers from mental and venereal diseases That the law was evaded in remote districts is doubtless true, and these evasions among a wild people would account for the anxiety of legislators to meddle on every occasion with personal liberty and for the emergence of the ill-starred Lister family in the extreme south-west of the country, a large number of whom have been myoclonic epileptics as well as ordinary degenerates and criminals Where the Swedes are in a foreign land, warring or sustaining themselves as a remnant of civilised men among lower races and cultures it becomes impossible to legislate and an appeal only can be made to them. Such an appeal is the fine and rather pathetic document issued by the Society for Improving Public Health in Swedish Finland, which is itself a committee of the Florin Commission, appointed by the Swedish Literary Society in Finland to administer a munificent legacy left them by Miss Jenny Florin in 1911 This lady in her will left 100,000 Fmk to the Literary Society on condition that the interest of the fund should be used to promote medical science The proclamation, issued to the Swedish population of Finland as an illuminated card, contains what cynics might take to be counsels of perfection "On our own will," it begins "on our innate power ultimately depends the future of the Swedish race in our country A people mentally and physically strong can hold out even under hard outward pressure!" You must direct your attention to the children that they are born with a good disposition, that they be well cared for and educated You must be careful to marry only into healthy families, and be on your guard against strong drink and sexual disease "The best inheritance you can give your children is not money and gold but a sound mind in a sound body!" Those who own a piece of ground are adjured not to sell it however much they may be tempted "Rather make it your glory and your pride as your fathers before you to leave it in an improved state to your descendants!" The farmer's life is the healthiest "Do not abandon your native place Above all do not move into town! Teach your children to love truth and keep their word Harden their wills teach them the value of diligence. Briefly all members of our Swedish race should be educated to become honest and diligent workers for their native place and their fatherland! *There must be no bad Swedish men and women in this country!*"

This is a document worthy of the Stoics of old

QUEEN SQUARE

LONDON is changing so fast, and so many old landmarks are daily disappearing in the rage for what is euphemistically called "improvement" that any history of things as they used to be is of value Queen Square which used to consist of beautiful Queen Anne and early Georgian houses, the abode of persons of quality and of a school known by the delightful name of "The Ladies Eton," together with a singularly ugly church described by Maitland in 1756, as "a perfectly plain and most inelegant brick building," has to-day seen the replacement of most of the houses by hospitals and other institutions The church is still there The hospitals include The National Hospital, the Alexandra Hospital, the Italian Hospital, and the Homœopathic Hospital, while the Children's Hospital in Great Ormond-street is not far away It is owing to the love of Mr Heathcote Hamilton Secretary of the National Hospital, for the district in which the hospital is situated that we owe a charming account[1] of the site The new hospitals and institutions have fortunately not swallowed up all the old buildings for Nos 29 to 32 are now the property of the National Hospital and a glance at the excellent photographs of the interior of 29 will show how beautiful an early eighteenth century house could be Mr Hamilton has collected a number of interesting facts about the Square in its early days and its inhabitants At the Ladies Eton, which was kept by Mrs Dennis and her brother Admiral Sir Peter Dennis was educated a child by name Hester Salusbury known to fame afterwards as Mrs Thrale, and Mrs Piozzi who says in a letter circa 1750 how the Admiral "said I was qualified at 8 years old to be teacher rather than learner and he actually did instruct me in the rudiments of navigation as the globes were already familiar to me" Of the gradual change from a purely residential quarter into an institutional one Mr Hamilton's pages give an admirable moving picture

HEALTH CONDITIONS IN CYPRUS

IN the annual report recently issued it is stated that the estimated population of the island at the end of 1925 was about 330,000 The bulk of the inhabitants are of the orthodox Greek-Christian faith Of the remainder some 60,000 are Mohammedans There is also an Armenian community, which tends steadily to increase, and a distinct though not numerous Latin colony Except for the endemic prevalence of malarial fever, the climate of Cyprus is healthy and temperate, and, with proper precautions, there should be no difficulty in enjoying complete immunity from this disease The heat and humidity during the summer months impose a certain strain, but access to the hills is easily practicable within a very short distance The climate during the winter might almost be described as ideal, combining as it does invigorating cold with clear sunshine The continued dullness of more northern climes is seldom experienced, and a rainy day is invariably succeeded by a cloudless sky

Public health in 1925 was again good, and no outbreak of epidemic disease is to be recorded In contrast with all the neighbouring countries of the Levant and the Near East, Cyprus is entirely free from plague, typhus, and other virulent diseases, and stringent quarantine measures are in force against their introduction Phthisis has again demanded and engaged the especial attention of the medical authorities, the number of cases reported being greater than in 1924 Statistics relating to this disease are not, however, wholly to be relied upon, for persons afflicted with it have, in the past, brought considerable pressure to bear to avoid being reported The construction of the Government sanatorium has now been completed, and the new buildings, situated in most healthy surroundings four miles from Nicosia, are ready for the admission of patients As hitherto, the prevailing diseases, other than malaria and phthisis, were those of the digestive and respiratory systems influenza, diseases of the skin, rheumatism, and enteric fever There has been a most noteworthy decrease in the number of cases of enteric fever, following the improvements effected to the water supplies of the towns and villages Cases of trachoma have been on the increase, the numbers having risen from 393 in 1924 to 515 in 1925

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[1] London Williams and Norgate 1926 Pp 264 6s

[1] Queen Square Its Neighbourhood and its Institutions By Godfrey Heathcote Hamilton Secretary National Hospital Queen Square London Leonard Parsons 1926 Pp 146 10s 6d

Notes, Comments, and Abstracts.

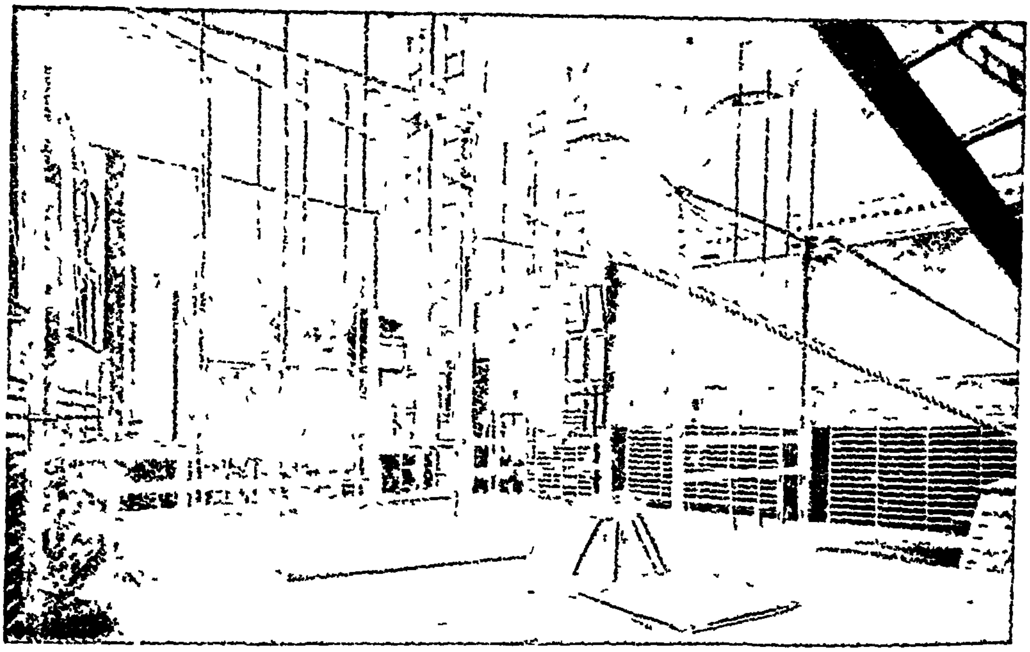
AN INSTITUTE FOR THE PHYSICAL TRAINING OF BOYS

By W H Battle, F R C S Eng ,
CONSULTING SURGEON TO ST THOMAS'S HOSPITAL.

A recent visit to the Lucas-Tooth Institute (St Olave's Institute, Bermondsey) has convinced me that the directors are doing valuable work in a very unostentatious manner for the benefit of the boys of London It was founded by the late Sir Robert Lucas-Tooth, who contributed a sum of £50,000 to give the scheme a start The main purpose is to train leaders for boys' organisations in order that they, in turn, may act as instructors and organisers in their various clubs All persons attending the classes must be bona fide members of a boys' club, cadet corps, or similar organisation, and must be recommended for the course by their respective club managers or officials The latest date for enrolment is Sept 15th of each year A gymnastic kit is provided for use during instruction, but remains the property of the club The course terminates in the second week of July of the following year Regular attendance from 8–10 P M on at least one evening a week is essential, as the nature of the work is progressive, for those able to attend at 7 30 P M a special vaulting class is given No payment is taken from the pupils The course consists of physical training, physical exercise, class-taking, recreational games, boxing, self defence (jiu-jitsu), and ground work Those reaching a satisfactory standard are awarded a Lucas-Tooth Badge and become eligible for a continuation course

The gymnasium (which is illustrated above) is a splendid well-ventilated room with top-lighting surrounded by apparatus The whole floor is covered with cork matting, which renders any slip during exercise almost impossible and breaks the falls which may sometimes take place beyond the space covered by the usual gymnastic mattresses For the jiu-jitsu exercises the pupils are on special grass mats as used in Japan for this method of training The cork matting also renders the movements of even a very large class unusually quiet The whole of the gymnastic fittings appear to have been judiciously chosen and carefully secured, whilst everything in the place is clean and orderly In the dressing-room each pupil is supplied with a peg in a locker, and there is ample washing accommodation, with hot and cold taps, and shower baths On the side opposite to the dressing-rooms, above a stairway, there is a coffee bar, behind a balcony provided with seats, where light refreshment can be obtained, and still higher up the stairs is a room with a punch-ball.

On the evening of my visit the advanced pupils were undergoing a special instruction course which varied from physical and gymnastic exercises to boxing and jiu jitsu. The last event was a game of (Lucas-Tooth) hand ball, which concludes every evening's work In this all those under instruction join and equal numbers appear on opposite sides It is a strenuous game and five minutes each way is quite sufficient for the players, who are, however, wonderfully keen throughout, but always good tempered In fact, the spirit in which everything was done was admirable, and the instructor was not only obeyed but willingly obeyed For the two hours under which the boys were under observation they did not appear to have a dull moment, whilst the noisy chaff and merriment amongst them when in the dressing-rooms afterwards gave evidence of their appreciation of the training and physical fitness



The Lucas-Tooth (St Olave's) *Institute at Bermondsey*

The management of the training is in the hands of Major W K Garnier, *so well known in former years* as the superintendent of physical training in the Royal Marines, and Captain W A Pinkerton (late Royal Marines) There is also an assistant, Mr J Cassford (late R N), who always appears to be where assistance is required by a hesitating or backward pupil *Visitors who would like to see* the Lucas-Tooth Institution and form their own opinion regarding it, and the work done there, are welcomed on any day in the week between 7 30 and 10 30 P M excepting *on Saturday and Sunday* I have heard of *no* institution equal to it

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MATHEMATICS FOR NON-MATHEMATICIANS

Students of economics and statistics will be grateful to Mr D Caradog Jones and Prof G W Daniels for having written a little book on the Elements of Mathematics (University Press of Liverpool, Ltd , Hodder and Stoughton, Ltd , London, 1926, pp 240, 8*s* 6*d*), designed for those who have had only a slender training in mathematics The authors assume in their readers no mathematical knowledge beyond a matriculation standard, and the reader is led on through progressions, logarithms, and binomial expansions to coördinate geometry and calculus step by step with the intellectual equipment of a school-leaver It is not an easy path, and one which will require constant and diligent attention on every page, but at no place is help needed from any outside source The fourth part of the book provides an example of the utility of mathematical ideas in economic theory, and will afford the reader who has loyally toiled through the first three parts the satisfaction of achievement. We warmly recommend the book to all who would like to get an insight into the means by which the expert economist and statistician reach their conclusions, an insight which has heretofore been debarred to many by the impression that transcendental mathematical ability is required The book is admirably printed and arranged for the purpose in view

An Address

ON

ADAPTABILITY IN DISEASE

Delivered to the Derby Medical Society on Dec 2nd, 1926,

By GEORGE R. MURRAY, M.D. Camb.,
F.R.C.P. Lond., D.C.L.,

EMERITUS PROFESSOR OF MEDICINE IN THE VICTORIA UNIVERSITY OF MANCHESTER, CONSULTING PHYSICIAN TO THE ROYAL VICTORIA INFIRMARY, NEWCASTLE, AND TO THE MANCHESTER ROYAL INFIRMARY

In many diseases, and especially in those which run a chronic course, it is remarkable how well the sufferers adapt themselves to the altered conditions of their lives. This power of adaptation to adverse circumstances, or the capability of making the best of things, varies greatly in different individuals. While one sufferer from a mild chronic ailment settles down at once to an invalid existence, another with a higher degree of disability, but more courage, leads a useful and even active life for a long period. I propose, therefore, to consider briefly the adaptability of man in health and in disease, and hope to show by practical illustrations that some knowledge of his powers is a useful guide in framing a prognosis and carrying out the treatment of chronic maladies.

Reaction to Environment

In health we are constantly adapting ourselves to changes in our environment. Ready adaptability is a sign of a healthy mind and body. The late Dr J. G. Adami[1] in his Croonian Lectures, in dealing with this subject from the biological aspect, said the worker in pathological laboratories is impressed by the fact that "direct adaptation—that is specific modification in response to a specific alteration in environment within limits which will presently be laid down—is one of the basal phenomena of living matter." He showed that the variation in virulence of pathogenic bacteria is due to adaptation. The anthrax bacillus can be made to adapt itself to altered conditions in which it loses its virulence. This modified anthrax bacillus, by adapting itself to growth in a series of animals of increasing resistance, can regain its full virulence. Thiele and Embleton,[2] by the use of *anaphylaxis*, succeeded in changing the saprophytic *B. mycoides* into a pathogenic and lethal microbe for *guinea-pigs*. Thus from the lowest forms of life up to man we find that this adaptive power is present. *Adaptability is natural* to youth, and it is well that is so, as the young may be called upon to make frequent changes. Owing to the modern custom of placing many private schools near the sea instead of in the country, boys, whose homes are in the town or country, have to adapt themselves to the seaside each term. This is beneficial for some boys, especially in the summer term, but it is doubtful if there is any advantage in this change in the other two terms. Some boys find this repeated migration to the seaside very trying. At the age of about 13 a boy is transferred to a public school. Nearly all our public schools and universities are inland, some even in valleys near rivers. The health of boys at these schools is certainly excellent, and it is difficult to understand why a seaside school is considered to be so important from 9 to 13 years of age, while from 13 to 18 a boy goes to an inland public school almost as a matter of course. As years advance this power of adaptation diminishes until we find in old age a conservative frame of mind, with great aversion to changes in familiar surroundings. Normal man has powers of adaptability which have enabled him to inhabit parts of the earth where all the circumstances appear to be adverse. The Esquimaux in the far north have maintained a precarious existence for generations amid surroundings which would daunt most of us. The adaptability of our own race is notorious, as it has enabled it to establish itself in all parts of the world, and so to found the British Empire which contains every kind of climate. The ease with which human beings gradually become accustomed to life at high altitudes is remarkable. Even more remarkable is the power of adaptation to rapid ascents shown by many airmen. Careful observations made during the war made it possible to devise certain tests by means of which the suitability of candidates for flying can be gauged. By this means it is possible to ascertain if a man is fit to fly to a great height or only to a moderate elevation, or is unfit to fly at all. Equally remarkable is the adaptability of men who work in compressed air in a caisson, where the pressure is usually +30 to +35 lb., but may be as high as +45 or even +50 lb. The risk attendant on such sudden changes in pressure are, of course, greatly lessened by allowing sufficient time for gradual compression and decompression in the chamber specially constructed for the purpose. The powers of rapid adaptation to severe muscular effort can be increased by careful training in health. By properly graduated exercise in training for a boat race a healthy man greatly increases his physical efficiency in the course of a few weeks. The heart and the voluntary muscles adapt themselves to the increased effort, so that by the time of the race the sculler or crew can cover the course in a much shorter time than was possible before the training commenced. During the training it is not only a question of developing more muscular power, but also of learning how to apply it to the best advantage in propelling the boat. The circulatory, respiratory, and excretory systems have to adapt themselves to meet the tremendous strain imposed on them in rowing or running a race, be it long or short.

In the case of bilateral organs, one, by means of compensatory hypertrophy, can become capable of doing double work. This is well illustrated by patients on whom nephrectomy has been performed for disease of one kidney. The remaining kidney can do duty for both for, to my knowledge, more than 20 years. The power of adaptation varies greatly in different individuals in health and in disease. We find the same difference in those who have been permanently injured by a wound or by an accident. One man, partly by his own effort and partly by the aid of orthopædic surgery, will adapt himself and his mode of life to the loss of a limb in such a way that he is as useful a member of society as he ever was. Another man appears to be overcome by his misfortune, and resigns himself to a life of little effort or use to his fellows. In America Henry Ford has shown in a remarkable way how suitable and remunerative work can be found for men with all kinds of disabilities.

Adaptation and Prognosis

It will be generally admitted that prognosis is one of the most difficult branches of the art of medicine. Great difficulties confront us when we are asked to forecast the immediate outcome of an acute illness, and even greater when we are asked to outline the future course of events in the case of some chronic malady. I am, of course, not alluding to simple or slight forms of illness, in which a favourable prognosis can be given with a cheery optimism which does so much to encourage the relations and aids the recovery of the patient. In acute maladies rapid powers of adaptation come into play and are shown in the local and general reactions to infection. These adaptations may, however, cause the more obvious signs of the malady, as Sir F. W. Andrewes[3] said in his recent Linacre Lecture, "It is an evil that a tissue should become inflamed and that the body temperature should rise in an acute infection, but it is a lesser evil than that the infecting agent should overrun the body unchecked by any antagonistic mechanism." In many acute infections the medical man is in a similar position to that of the captain of a ship which has been caught in a severe storm at sea. The captain and his crew cannot stop the storm, but by skilful seamanship the ship is enabled to weather the storm and reach port in safety. A constant watch is kept

This unfortunate development has engaged the earnest attention of the medical department, and to assist in combating the disease it is intended to increase the staff of the Nicosia General Hospital by engaging the part-time services of a qualified oculist The malarial statistics are of great interest, and afford satisfactory proof of the value of the special antimalarial campaign conducted in 1924 Though the total number of children examined shows an appreciable increase, the spleen rate, by which the prevalence of malaria is commonly measured, fell from 13 5 *to* 9 8 *per cent* *This rate is even lower than that* recorded in 1023, since when a much stricter check has been kept on the returns rendered by the medical officers in the districts The decrease in the spleen rate for the six towns is still more marked, and the rate is now as low as 2 3 per cent

The total number of births registered during 1925 was 7803, being 23 6 per 1000 of the population, as against 8946, or 27 3 per 1000, in 1924 The deaths registered numbered 4769, being 11 4 per 1000, as against 5703, or 17 4 per 1000, in 1924 There were two Government-maintained hospitals (Nicosia and Limasol) and four Government-aided hospitals in operation during the year, as well as 19 rural dispensaries and eight branch dispensaries These dispensaries have been well attended, over 18,000 patients being afforded treatment Almost 900 patients were admitted to the Central Hospital at Nicosia, which is fitted with 56 beds, and the out-patients treated numbered more than 10,000, 122 surgical operations were performed A special feature of this hospital is the maternity side and the attention there given to the training of midwives At the close of the year 113 inmates were detained at the lunatic asylum, as against 107 at its commencement, 25 persons were discharged as cured, and 11 died, the number of new cases admitted was 12 Lunacy in Cyprus is generally of a mild form, and restraint had to be resorted to in three cases only Employment is found for some of the inmates indoors, while some are employed in keeping the grounds in order The number of lepers admitted to the leper farm—which is run on the lines of a village, with its own church, mosque, and schools—showed a decrease, the total detained at the close of the year being 80, as compared with 85 in December, 1924 There were 11 deaths, all of which were advanced cases of the disease Some of the inmates have been treated with intravenous injections of chaulmoogra oil, moogral, and preparations of antimony In nodular cases the treatment has been successful in producing the disappearance of the nodules and the growth of eyebrows Leprosy in Cyprus is well under control, and hopes are entertained that it may be possible in time entirely to eradicate it from the island. The number of children at the end of the year in the home for the healthy children of lepers was 10, all of whom remained free from any sign of the disease.

UNIVERSITY OF LONDON —Dr H S Stannus has been awarded the degree of Ph D in Science

ROYAL INSTITUTION —Next week Prof A V. Hill will continue his course of juvenile Christmas lectures on Nerves and Muscles How we Feel and Move His subjects will be the Lungs and Blood (Jan 4th), Nerves and Muscles Working Together (Jan 6th), and Speed, Strength, and Endurance (Jan 8th) The lectures are at 3 P M at 21, Albemarle-street, London, W 1

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH —On Dec 7th Prof G Lovell Gulland gave a lecture on High Blood Pressure, Albuminuria, and Glycosuria in Relation to Life Insurance It was the general rule nowadays, he said, to ask for an estimate of the blood pressure in all proposers over 50 years of age It was a useful guiding principle that any pressure above 150 mm should be regarded with suspicion, bearing in mind the fact that excitement alone might cause a rise of 20–30 mm over the true reading *Albuminuria should always be regarded as* a sign of possible renal mischief, and Prof Gulland quoted instances where an albuminuria apparently utterly unimportant had terminated in a definite *nephritis* Reviewing the subject of adolescent albuminuria he laid stress on the importance of examining the urine passed first thing in the morning If this urine was free from albumin it was, as a general rule, safe to pass the proposers He doubted the value of renal efficiency tests in these cases and in mild nephritics Even the symptomless type of glycosuria occurring in older people was not a safe risk to accept as the patients might develop the severe form Repeated tests were needed, for in a proportion of them sugar might be absent, although the patients were prediabetic cases, and should pay a heavy extra premium The only sure method of excluding renal glycosuria and lag-curve cases was by means of a full blood-sugar curve

Appointments.

CATTLE, FANNY B Sc, L R C P Lond, M R C S, has been appointed Medical Officer for the West Green district of Tottenham

HARTLEY J N J, O B E, M D, Ch B Edin, F R C S Edin and Eng, Honorary Surgeon to the Cumberland Infirmary, Carlisle

KING J C (Miss) M B, Ch B Edin D P H, Assistant Medical Officer to the Cheshire County Council

McDONALD, NEIL, M B, Ch B Manch M R C S, L R C P Lond., Anæsthetist to the Hospital for Sick Children, Great Ormond street

MASON, J WRIGHT, M B, C M Aberd Examiner in Forensic Medicine in the University of Edinburgh

STANNUS HUGH S, Ph D, M D Lond, M R C P Lond, D T M & H Examiner in Tropical Medicine, University of Liverpool

Queen Charlotte's Maternity Hospital, Marylebone road, N W CLEMMEY, A V, M B, Ch B Senior Resident Medical Officer CHISHOLM, W N, M B, Ch B Edin, Assistant Resident Medical Officer

Certifying Surgeons under the Factory and Workshop Acts SHAND J G B M B Ch B Edin (Woolpit, Suffolk), HEATON, F H, M R C S, L R C P Lond (Clacton on Sea)

Vacancies.

For further information refer to the advertisement columns

Birmingham, Highbury Group of Hospitals—Jun Surg O £350

Exeter Royal Devon and Exeter Hospital—Sen H S £210 Also H P At rate of £140

Holborn and Finsbury Hospital, Archway road, N—Second Asst M O £300

Hospital for Consumption and Dis of Chest, Brompton, S W—H P £50 for six months

Huddersfield Bradley Wood Sanatorium—Res M O £500

Hyde Borough—Part time Asst M O H £300

Lancashire Asylums Board—Deputy Med Supt £600

Leeds, City of—Asst M O H, &c £800

London Female Lock Hospital 283, Harrow road, W—First and Second H S 's At rate of £200 and £150 respectively

Manchester Ancoats Hospital—H P At rate of £100

Maudsley Hospital, Denmark Hill, S E—Sen Asst M O £640

Metropolitan Asylums Board, Mental Hospitals Service—Second Asst M O £560

Plaistow Fever Hospital—Second Asst M O £400

Royal Army Medical Corps—Commissions

St Mary Abbot's Hospital, Marloes road, W—Res Phys £350

Southwark, Metropolitan Borough of—Asst M O H £600

Stoke Newington Metropolitan Borough—Part-time M O H £700

Sudan Government Medical Dept—Two M O 's £E 720

University College Hospital, Gower street, W C—Hon Phys for Children's Dept

Warrington Infirmary and Dispensary—Jun H S £175

West London Hospital, Hammersmith, W—Hon S to Throat, Nose, and Ear Dept Also Hon Obstet Reg

Woolwich, Metropolitan Borough of—Asst M O £600

Births, Marriages, and Deaths.

MARRIAGES

FREEMAN—DAVIDS —On Dec 21st, at the Bayswater Synagogue, Chichester place W Jack Freeman, M B, B Ch, L D S, to Freda, only daughter of Mr and Mrs S H Davids, of Hamilton terrace, N W, granddaughter of the late Rev H Davids

HUNT—MALDEN —On Dec 23rd at St James's, Piccadilly, William Thomas Hunt, M R C S Eng, L R C P Lond, to Dora Fletcher Malden A R R C, third daughter of the late Mr and Mrs W F Malden, of Boddington House, Biggleswade

McINTOSH—STONE —On Dec 18th, at St George's Hanover square, James Wilson McIntosh, M B, F R C S B Sc (P H) Edin, to Eleanor Charlotte E Stone, M B, B S, D P H Lond

DEATHS

ADAMS —On Dec 22nd, Joseph Ebenezer Adams, M S, F R C S Eng, of Harley street, surgeon to St Thomas's Hospital

DOWKER —On Nov 3rd at Helmsley, Yorkshire, Elizabeth Dowker, aged 83 years, widow of the late Frederick Woodcock Dowker, surgeon

HARVEY —On Dec 23rd, at Crawford, Godalming, Frederick George Harvey, F R C S

MASON —On Dec 19th, Henry Sinclair Mason M R C S Eng, L R C P Lond, of Glencoe, Sutton Coldfield, Warwickshire, aged 41

SCOTT —On Dec 22nd, suddenly, at Crafnant, Crowborough, Alfred Scott, M R C S L R C P, formerly of Marine parade, Brighton aged 71

WILMOT —On Dec 22nd E B Wilmot, M R C S, L R C P, of Burnham House Burnham, Bucks

N B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

An Address

ON

ADAPTABILITY IN DISEASE

Delivered to the Derby Medical Society on Dec. 2nd, 1926

By GEORGE R. MURRAY, M.D. Camb.,
F.R.C.P. Lond., D.C.L.,

EMERITUS PROFESSOR OF MEDICINE IN THE VICTORIA UNIVERSITY
OF MANCHESTER, CONSULTING PHYSICIAN TO THE ROYAL
VICTORIA INFIRMARY, NEWCASTLE, AND TO THE
MANCHESTER ROYAL INFIRMARY.

In many diseases, and especially in those which run a chronic course, it is remarkable how well the sufferers adapt themselves to the altered conditions of their lives. This power of adaptation to adverse circumstances or the capability of making the best of things, varies greatly in different individuals. While one sufferer from a mild chronic ailment settles down at once to an invalid existence, another with a higher degree of disability, but more courage, leads a useful and even active life for a long period. I propose, therefore, to consider briefly the adaptability of man in health and in disease, and hope to show by practical illustrations that some knowledge of his powers is a useful guide in framing a prognosis and carrying out the treatment of chronic maladies.

Reaction to Environment

In health we are constantly adapting ourselves to changes in our environment. Ready adaptability is a sign of a healthy mind and body. The late Dr. J. G. Adami[1] in his Croonian Lectures, in dealing with this subject from the biological aspect, said the worker in pathological laboratories is impressed by the fact that "direct adaptation—that is specific modification in response to a specific alteration in environment within limits which will presently be laid down—is one of the basal phenomena of living matter." He showed that the variation in virulence of pathogenic bacteria is due to adaptation. The anthrax bacillus can be made to adapt itself to altered conditions in which it loses its virulence. This modified anthrax bacillus by adapting itself to growth in a series of animals of increasing resistance can regain its full virulence. Thiele and Embleton,[2] by the use of anaphylaxis succeeded in changing the saprophytic *B. mycoides* into a pathogenic and lethal microbe for guinea-pigs. Thus from the lowest forms of life up to man we find that this adaptive power is present. Adaptability is natural to youth, and it is well that is so, as the young may be called upon to make frequent changes. Owing to the modern custom of placing many private schools near the sea instead of in the country, boys, whose homes are in the town or country, have to adapt themselves to the seaside each term. This is beneficial for some boys, especially in the summer term, but it is doubtful if there is any advantage in this change in the other two terms. Some boys find this repeated migration to the seaside very trying. At the age of about 13 a boy is transferred to a public school. Nearly all our public schools and universities are inland, some even in valleys near rivers. The health of boys at these schools is certainly excellent and it is difficult to understand why a seaside school is considered to be so important from 9 to 13 years of age, while from 13 to 18 a boy goes to an inland public school almost as a matter of course. As years advance this power of adaptation diminishes until we find in old age a conservative frame of mind, with great aversion to changes in familiar surroundings. Normal man has powers of adaptability which have enabled him to inhabit parts of the earth where all the circumstances appear to be adverse. The Esquimaux in the far north have maintained a precarious existence for generations amid surroundings which would daunt most of us. The adaptability of our own race is notorious as it has enabled it to establish itself in all parts of the world, and so to found the British Empire which contains every kind of climate. The ease with which human beings gradually become accustomed to life at high altitudes is remarkable. Even more remarkable is the power of adaptation to rapid ascents shown by many airmen. Careful observations made during the war made it possible to devise certain tests by means of which the suitability of candidates for flying can be gauged. By this means it is possible to ascertain if a man is fit to fly to a great height or only to a moderate elevation, or is unfit to fly at all. Equally remarkable is the adaptability of men who work in compressed air in a caisson, where the pressure is usually +30 to +35 lb., but may be as high as +45 or even +50 lb. The risk attendant on such sudden changes in pressure are, of course, greatly lessened by allowing sufficient time for gradual compression and decompression in the chamber specially constructed for the purpose. The powers of rapid adaptation to severe muscular effort can be increased by careful training in health. By properly graduated exercise in training for a boat race a healthy man greatly increases his physical efficiency in the course of a few weeks. The heart and the voluntary muscles adapt themselves to the increased effort, so that by the time of the race the sculler or crew can cover the course in a much shorter time than was possible before the training commenced. During the training it is not only a question of developing more muscular power, but also of learning how to apply it to the best advantage in propelling the boat. The circulatory, respiratory and excretory systems have to adapt themselves to meet the tremendous strain imposed on them in rowing or running a race, be it long or short.

In the case of bilateral organs, one, by means of compensatory hypertrophy, can become capable of doing double work. This is well illustrated by patients on whom nephrectomy has been performed for disease of one kidney. The remaining kidney can do duty for both for, to my knowledge, more than 20 years. The power of adaptation varies greatly in different individuals in health and in disease. We find the same difference in those who have been permanently injured by a wound or by an accident. One man, partly by his own effort and partly by the aid of orthopædic surgery, will adapt himself and his mode of life to the loss of a limb in such a way that he is as useful a member of society as he ever was. Another man appears to be overcome by his misfortune, and resigns himself to a life of little effort or use to his fellows. In America Henry Ford has shown in a remarkable way how suitable and remunerative work can be found for men with all kinds of disabilities.

Adaptation and Prognosis

It will be generally admitted that prognosis is one of the most difficult branches of the art of medicine. Great difficulties confront us when we are asked to forecast the immediate outcome of an acute illness, and even greater when we are asked to outline the future course of events in the case of some chronic malady. I am, of course, not alluding to simple or slight forms of illness, in which a favourable prognosis can be given with a cheery optimism which does so much to encourage the relations and aids the recovery of the patient. In acute maladies rapid powers of adaptation come into play and are shown in the local and general reactions to infection. These adaptations may, however, cause the more obvious signs of the malady, as Sir F. W. Andrewes[3] said in his recent Linacre Lecture. "It is an evil that a tissue should become inflamed and that the body temperature should rise in an acute infection, but it is a lesser evil than that the infecting agent should overrun the body unchecked by any antagonistic mechanism." In many acute infections the medical man is in a similar position to that of the captain of a ship which has been caught in a severe storm at sea. The captain and his crew cannot stop the storm, but by skilful seamanship the ship is enabled to weather the storm and reach port in safety. A constant watch is kept

If a leak is sprung it is counteracted by the use of the pumps, or the violence of the waves may be checked by the use of oil. In acute pneumonia we have no reliable means as yet of controlling the course of the infection or of bringing on a crisis when we wish We can, however, do a great deal by helping our patient to adapt himself to the attack by suitable nursing and feeding, and by the judicious use of medicinal and other remedies such as the occasion may demand On this occasion I shall refer mainly to chronic maladies which, be they mild or severe, will influence the whole of the patient's future life A consideration of the powers of adaptation to some chronic maladies is useful as an aid to prognosis If added to this we have some knowledge of the temperament, character, and circumstances of the patient we are all the better able to tell him what lies before him in the future. We shall, at any rate, be able to give him some general idea of what he may be able to accomplish in the way of work and recreation In framing such a prognosis the cooperation of the general practitioner, who knows the patient, his family history and surroundings, with the physician who has had special experience of the course of the particular malady in question, is important. It will be found that the prospect of being able to lead a life of some activity and pleasure acts as a powerful suggestion to a patient to face his troubles bravely and think less of them May not such a frame of mind even tend to check the progress of a chronic nervous disease? In the treatment of chronic maladies our aim is not only to do all we can to arrest or delay the progress of the disease, but also to enable the sufferer to make the best use of his time A great deal can be done in this direction by indicating how he can employ those faculties and organs left to him in working order A good example of this is seen in the modern methods of training the blind, the deaf, and the dumb, who are thereby enabled to acquire remarkable powers of doing useful work which in former times often remained undeveloped for want of suitable education This special training is now carried out on a large scale at Henshaw's Institution for the Blind and the Royal Schools for the Deaf and Dumb at Old Trafford and other similar institutions In exceptional cases the power of adapting life to loss of sight is extraordinary Take, for example, the career of the late Henry Fawcett, who was born in 1833, and lost his sight in 1858, at the age of 25, through a shooting accident In spite of this disability he held the Professorship of Political Economy at Cambridge from 1863, up to the time of his death in 1884 He was a Fellow of the Royal Society, had a distinguished political career, and was Postmaster-General in Mr Gladstone's Cabinet in 1880 He was fond of rowing, and I can remember seeing him row stroke of an eight on the Cam when I was an undergraduate at Cambridge.

Examples from the Nervous System

In recent years much attention has been paid to the problem of dealing with the feeble-minded For more than 50 years one of the main objects of the Royal Albert Institution, which was opened at Lancaster in 1870, has been to train improvable cases to adapt themselves to make the best of their limited mental powers and to apply them to learning some useful, if simple, form of handicraft In yet another direction the same principle is being applied in cases of chronic pulmonary tuberculosis It has been found by painful experience that when a man returns to his home after a course of treatment in a sanatorium and is forced by circumstances to compete in the labour market with healthy men, his efficiency is only from 25 to 75 per cent of the normal Under the strain of this competition, and the adverse circumstances of town life, many break down again. At the East Lancashire Tuberculosis Colony which has been founded at Barrowmore in Cheshire for ex-Service men and civilians, and at other similar institutions, these men are trained in carpentry, poultry-farming, gardening, and other suitable trades, under medical supervision in the country They learn to adapt themselves to do the kind and amount of work for which they are best fitted Cottages for married men and a hostel for single men have been built on the estate, so that those who wish may remain to work under the best possible conditions after their training has been completed It is, however, of the individual case as met with in practice I wish to speak in particular. As a practical illustration of what can be done, we may take a chronic disease of the nervous system, such as locomotor ataxy This malady is due to the late action of syphilis on the sensory neurons By the time the disease is recognisable more or less permanent damage has been sustained by these structures Much may be done by appropriate medicinal treatment to check or even arrest the further progress of the malady Nevertheless, at whatever stage the patient comes under observation, a certain amount of irreparable damage has been done, so that in addition to antisyphilitic and other treatment we have to teach the patient to adapt himself to his disability and make the best use of those parts of the nervous system which remain intact or are but slightly affected Owing to loss of muscular sense the ataxy is a serious disability in many cases. Muscular power may be quite adequate for all ordinary purposes, but owing to lack of control it is ineffective Efforts are instinctively made to correct this difficulty by watching voluntary movements so that sight by degrees takes the place of the lost muscular sense Prof J. B Leathes,[4] in a recent address, indicates that with the nervous system "the work of Pavlov has made one thing clear, that by a physiological reaction in it machinery may come into existence which did not exist before" It may therefore be possible, by repeated and suitable actions, not only to improve functions already performed, but create new conditioned reflexes in those who have lost some portions of the nervous system by disease We can greatly assist this process by the employment of re-education exercises, carefully adapted to the needs of each individual case One of my patients was so ataxic when he was admitted to the Manchester Royal Infirmary that he was quite unable to walk. After a few weeks' training he was able to walk about the ward, though in other respects his physical condition remained practically the same Some years ago a middle-aged man came to consult me on account of a painless swelling of one foot which prevented him from putting on his hunting boots At first he was very reticent about his past history On examination he was found to be suffering from tabes dorsalis, with a Charcot's joint Finally he gave his history, and it transpired that the malady had been present for many years, and ten years previously he had suffered severely for a time from gastric crises These ceased, and for ten years he had been able to conduct his business and to hunt and to shoot regularly. As this seemed to be a remarkable performance, I asked how he was able to do all this He admitted that in hunting he fell from his horse rather too frequently, but had sustained no serious injury In covert shooting, which is a very delicate test of coordination of the movements of the head and arms, his shooting was quite up to the average of the rest of the party, but he had to be careful to avoid taking birds passing directly overhead, as in firing at a bird in this position he was apt to lose his balance and fall on his back Another example of the long duration of the same malady was afforded by the case of a cavalry officer who, while on active service in one of the campaigns of last century, had symptoms which ultimately proved to be due to an early stage of tabes Although he was ataxic and suffered terribly at times from lightning pains, he was alive and able to travel about the world 34 years after the onset of the disease Among those who have suffered from infantile paralysis in early life we meet with remarkable examples of adaptation By the aid of exercises, massage, orthopædic operations, and apparatus, muscles are trained to carry out new functions and so to compensate for the loss of those which have become atrophied and useless I know one very plucky girl who, in spite of paralysis of both legs, learned to propel a wheeled chair, took a degree with honours at a university, followed by a special course of training in languages and in secretarial work, and now is able to go about alone and do her work in a large city.

In cases of hemiplegia, or more correctly of hemiparesis, of long standing, patients may adapt themselves remarkably. One man I know has suffered from hemiparesis from early life, but nevertheless has become an expert rock climber Epilepsy is another nervous malady from which men of great intellectual attainments have suffered and yet have become famous in history

CIRCULATORY SYSTEM.

In diseases of the circulatory system we meet with remarkable examples of adaptation It is well known that the cardiac muscle in young subjects readily hypertrophies to compensate for valvular defects resulting from acute endocarditis Compensatory hypertrophy is an important factor in diseases of the heart which occurs not only in the young but also in those past middle life, provided the myocardium remains sound. The need for compensation in these older persons may arise from sclerotic valvular disease or from the additional cardiac effort required to maintain the circulation when the blood pressure is raised in cases of renal and arterial sclerosis Familiar as these results are, it is hardly realised how long this early adaptation may be maintained in some subjects

Many years ago I was asked to examine a physician who was then about 90 years old I found marked but well-compensated mitral incompetence. He then told me that the valvular lesion had been present for 70 years It had followed an attack of acute rheumatism which had occurred at about the age of 20 He had led an active life as a consulting physician on the staff of a general hospital and lecturer at a medical school By taking reasonable care he had avoided inconvenience from this cardiac lesion throughout a very long life.

A friend furnishes another example of what can be done by sufferers from valvular disease of the heart. As a young man he had several severe attacks of acute rheumatism, in one of which I examined him. At that time he had well-marked aortic and mitral incompetence well compensated by dilatation and hypertrophy of the left ventricle During the 30 years which have since elapsed he has been very successful in business, has become a well-known Member of Parliament, and has married and brought up a family

I may also mention the case of another successful man of business who at the age of 25 had mitral incompetence, and had been taken by his medical man to consult a physician in London who gave him sound advice. For 50 years he led an active life in business and public affairs, and was able to shoot regularly each autumn. Between 70 and 75 he had one attack of broncho-pneumonia, and later on, acting on my advice, as his mitral lesion was so well compensated, he had a very successful gastro-enterostomy performed for a simple pyloric stenosis. At 75 he went out shooting while suffering from a mild attack of broncho-pneumonia, and when he gave in and sent for his doctor was found to have auricular fibrillation. When I saw him two days later he was doing well The physical signs of mitral incompetence with compensatory hypertrophy remained as before and as they probably had been for 50 years. He made a good recovery, and although the irregularity of the pulse persisted he was able to go out and shoot 40 rabbits in an hour and a half.

I may refer to a case described by Prof Edwin Bramwell[5]

The patient was a man aged 52, who early in life had an attack of rheumatic fever, and when examined was found to have typical aortic incompetence. At the age of 26 he had been advised by three distinguished physicians who all said he must take life easily and avoid physical exertion. At the end of three months he was tired of the restrictions and returned to his former mode of life, hunting three days a week, and shooting regularly His heart had never troubled him, and it was not until ten years later, when he was 62, he developed symptoms of angina pectoris from which he eventually died

In these cases so well has the cardiac muscle adapted itself to the valvular lesion that it is able to carry on until senile changes commence and the compensation fails. Even in the case of such serious conditions as heart-block, life may be prolonged, and Dr John Cowan[6] mentions that Sir William Gairdner lived for seven years with full heart-block and one of Vaquez's patients for 15 years Even when auricular fibrillation has become permanently established, life may be prolonged for years One of Dr Cowan's patients worked as a miner for 79 of the last 108 months of his life, although his auricles were fibrillating all the time

One of my patients has suffered from complete heart-block for several years and is liable to Stokes-Adams attacks Nevertheless he goes to business regularly by tram car He is well known to the conductors on the cars by which he travels, and has arranged with them so that whenever he has an attack of loss of consciousness in the car he is laid on the seat until he recovers As soon as the attack is over he goes about his business as usual

CHRONIC PULMONARY DISEASE

Among cases of chronic pulmonary disease we find many suitable illustrations We are all familiar with cases of phthisis in which arrest has taken place at an early stage and an almost normal life has been possible afterwards A young medical man who was in practice in a northern town came to consult me some 24 years ago I found physical signs of early pulmonary tuberculosis at the apex of one lung, and tubercle bacilli in the sputum On discussing the situation with him I ascertained that he could only arrange to leave his practice for six months for rest and treatment He spent this time at Davos, and occupied much of his time playing bridge out of doors with three other patients This was rather chilly work, and so a hot-water bottle was passed round to each player to warm his hands before dealing the cards Even such a short course of treatment proved most satisfactory, as the disease was arrested and he was able to resume his practice at the end of the six months He now weighs 13 st and is still at work. Several of my friends have been through a similar experience and after recovery have achieved great distinction in our profession. Such recoveries are fortunately of frequent occurrence. I wish, however, to show how some really serious cases of chronic disease can nevertheless lead active and interesting lives

In cases of chronic pulmonary disease as much as half of the pulmonary tissues may be so much involved as to be practically functionless and yet a useful life is still possible.

A good example of this was furnished by a friend who when quite a young man had suffered from fistula in ano, and presumably had been tuberculous from that time onward. He came under my observation much later in life. He then had a cough of many years' duration, though his general health was good. He had well-marked signs of chronic fibroid tuberculosis of the lung Tubercle bacilli were only found in the sputum on one occasion while he was suffering from influenza. He developed tuberculosis of one testicle which was removed The vesiculæ seminales were probably also involved, as he still continued to pass tubercle bacilli in his urine, and there was no evidence of renal infection At another time he had a tuberculous abscess at the crest of the ilium. These events were spread over a number of years, during which he was the managing director of important engineering works. He carried on his work until the natural time for retirement arrived, and lived until he was over 70 years of age. Thus, in spite of chronic tuberculosis, he carried on an active career for just as long as a normal man. He unfortunately acted as a "carrier" His only son developed pulmonary tuberculosis and died after an illness of some five years' duration. The housemaid developed caries of the spine and was reported to have died later of tuberculosis These two cases were evidently infected by a chronic carrier, but being endowed with less resistance they both died long before he did

A remarkable history was given in the case of a man of great intellectual attainments whom I only saw a few days before his death at the age of 69. He had a first attack of paroxysmal tachycardia at the age of 13 At 20 he developed tuberculosis of the right lung The attacks of tachycardia recurred at intervals for 53 years At one time he used to stop the attacks by running up a staircase. Later in life he found the best means of arresting the attacks was to drink a small bottle of champagne He had also at various times suffered from hæmoptysis He had always insisted on leading a very full life. Not only had he taken an active part in business but he was a leader in politics, and was deeply interested in philosophy Even at the end of his life he was engaged in writing a book on an abstruse subject When I saw him the whole of the right lung was extensively fibrosed with an old cavity in the upper lobe The upper lobe of the other lung was also affected The attacks of paroxysmal tachycardia had become more severe, the pulse-rate being 160 during the attacks and 80 during the intervals between them He had developed Cheyne-Stokes respiration and died a few days later

The cases I have described serve sufficiently to show how those who suffer from chronic cardiac or pulmonary disease may successfully adapt themselves to the limitations imposed by their maladies They show that in suitable cases we may urge our patients to lead fairly active lives, but naturally such cases require careful selection Sometimes the patient appreciates his own powers and limitations better than we can, and may be allowed to use his own judgment We find the highest powers of adaptation in cardiac cases in which the valvular disease has arisen in early life as the result of rheumatic endocarditis and the myocardium has escaped any permanent injury so that it is capable of undergoing adequate compensatory hypertrophy In the case of valvular lesions which develop later in life, as the result of syphilis or senile sclerosis of the valves, adaptability is much less owing to the myocardial changes which are often present in these cases, but even in these cases a quiet but useful life is often quite possible One elderly patient, who suffered from angina pectoris, told me that as long as he did not attempt to walk at more than two miles an hour he was free from pain, and at this pace he could cover as many as 15 miles in the day If he accelerated his pace, even to three miles an hour, he was apt to bring on an attack of angina He had, however, adapted himself to walking at two miles an hour, and so was able to enjoy long walks in the country without discomfort Speaking generally of cardiac and pulmonary maladies, early onset and arrest of the disabling disease leaves the greatest power of adaptation The later the disease occurs in life the less prospect there is of good adaptation Even in late cases, however, a good deal may be done to help the patient to make the best of things if not only his physical condition but all the surrounding circumstances of his life are fully considered

ENDOCRINE DISORDERS

Among diseases of the endocrine glands acromegaly furnishes an illustration of my subject In cases of this malady life may be prolonged for many years Two notable examples of the good use which can be made of these years have been furnished by members of our profession Dr Leonard Mark,[7] in his most interesting description of his own case, not only gives a graphic account of the early symptoms, but shows how a brave man carried on his work, in spite of this adversity, for many years A distinguished American surgeon, who has achieved a world-wide reputation, has also continued his career although afflicted by this disfiguring and disabling malady

A remarkable example of another disease of the pituitary gland, adiposis dolorosa, was admitted to the Manchester Royal Infirmary under my care last year The details of this case have not yet been published, but may be briefly referred to here

The patient was a married woman aged 44, who gave a history of five years illness She had four children living During the last five years she had gradually become heavier until at the time of her admission she weighed 26 st 8 lb She presented the typical appearance of a case of Dercum's disease The characteristic folds of adipose tissue were very large and the abdominal wall hung down like an apron to the level of the upper part of the knee-joint Owing to this state of affairs she could only go a few yards away from home without some means of conveyance In spite of the disability she had an active mind and was so devoted to her family and to her domestic duties that she insisted on returning to her home after a short stay in the hospital

The reason I refer to this case is that in order to adapt herself to her condition and carry on her housework she always carried a chair with her Thus she was just able to move from one part of her house to another, and then promptly had to sit down on the chair to do all her work. In this way she was able to look after her family and house in a most exemplary fashion, when many another woman would have given in and become a chronic invalid

In the treatment of Graves's disease rest is of great importance In many cases, unfortunately, owing to the domestic circumstances of the patient, adequate rest, for the long period required in such a protracted malady, is not possible In spite of such difficulties it is remarkable how well many patients adapt themselves to the best kind of life which is possible under the circumstances. By retiring to bed early in the evening and taking as much rest as possible at the week-end, many patients are able to carry on their employment and earn a necessary living throughout their illness Recovery is probably considerably delayed in these cases, but may be ultimately attained under suitable treatment In other cases the intolerance of idleness is so great that it is advisable to give some occupation, even where there is no need to work for a living. One of my patients, who passed through a severe attack of Graves's disease, of several years' duration, to complete recovery, spent part of her time in learning the Turkish language

Some of the diseases of the spleen run a prolonged course, and so call forth the powers of accommodation to the limitations which they impose Take, for example, that rare and interesting malady, polycythæmia rubra, in which, associated with a large spleen, there is a great increase in the number of the red blood corpuscles

Some years ago I saw with a friend a member of the legal profession, aged 38, who at the time was laid up with an acute attack of pain in the left side of the abdomen associated with a high temperature For seven years before this attack the increasing redness of his face had called forth uncomplimentary, but quite erroneous, comments as to his habits On examination he was found to be suffering from polycythæmia with recent acute perisplenitis The spleen extended down to the level of the umbilicus, and on auscultation friction sounds could be heard all over it He made a good recovery from the attack of perisplenitis, and 11½ years afterwards—that is, probably 18 years after the onset of the malady—he was still in the active practice of his profession

CONCLUSION

There is no necessity for me to multiply examples to illustrate my subject, as it is to those engaged in general practice that we must look for further information as to the capacities of those who suffer from chronic maladies A careful study of these capacities in each case as it comes before you, and sound advice based on these observations, will do a great deal not only to improve the condition of your patient but will enhance his enjoyment of life by instilling fresh hope when he realises that he can still do some useful work in life

I have endeavoured to show that adaptability, which is a common property of all forms of life, is a very important factor in man in both health and disease In disease, and specially in chronic disease, due allowance must be made for this capacity in framing a prognosis A practical experience of what the victim of a chronic malady can do by conscious and unconscious adaptation is of great value not only in encouraging him to make the best of his life but also in giving suitable advice as to how this may best be accomplished I wish, therefore, to make a plea for a fuller study of every case of chronic disease so as to estimate his remaining powers and possibilities as accurately as possible When his capabilities have been gauged, it may be possible in many cases, as I have shown by practical illustrations, so to order his life that it becomes far more useful and enjoyable than before In this way many a patient may be saved from drifting into an existence which is clouded by unnecessary pessimism

(References at foot of next page)

THE CLINICAL OCCURRENCE OF SINO-AURICULAR BLOCK.

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ALTHOUGH in a vast majority of cases an intermission of the pulse is due to an extrasystole, or in a minority to a slight heart-block with dropped beat, there have proved to be occasional intermissions resulting from neither of these irregularities In some of these exceptional cases a characteristic polygram and electrocardiogram has been found and the term sino-auricular block has been applied to the condition It was first used by Wenckebach in 1907[32] in describing a phenomenon comparable with auriculo-ventricular block, but where instead of an auricular beat failing to influence the ventricle (missed ventricular beat), the auricular, as well as the ventricular contraction, failed to appear on the polygram—a whole heart beat was missed In other words, there was a pause in the record equal to two cycles, suggesting that the sinus had produced an impulse which had been blocked and a whole heart beat had been lost (sino-auricular block)

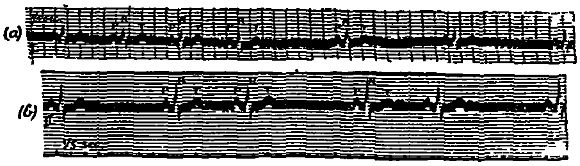
Four cases will now be described to illustrate the condition

Clinical Records

CASE I —Male, aged 65, tailor Three years ago giddiness one morning on rising, consulted doctor, who remarked that pulse was slow Pain in the back and in the right shoulder, induced by exertion, worse last six months, slight palpitation, some breathlessness and exhaustion Moderate smoker, abstainer, no history of previous illness or infection

Examination—Moderate obesity Pulse intermittent Heart sounds distant Short systolic murmur at aortic area Blood pressure, 190 systolic, 90 diastolic Slight œdema of ankles Urine normal Wassermann reaction negative Radioscopy, globular heart, apex just external to nipple line, slight enlargement to the right, aorta normal Pulse was not always irregular, but if so it showed frequent "dropped beats" Rate varied between 56 and 72 beats a minute Patient at no time was conscious of these intermissions and suffered no inconvenience from them His symptoms were ascribed to chronic arthritis, with a moderate degree of hyperpiesis When the pulse was irregular the electrocardiogram was as in Fig 1 During the 14 months of subsequent observation several electrocardiograms were taken, all of which were similar to Fig 1, with exception of the last, which showed sinus bradycardia only The same minor symptoms and signs were present and the blood pressure was systolic 170, diastolic 80

FIG 1

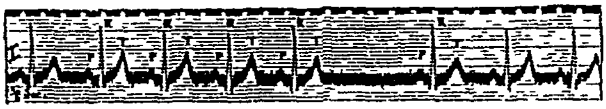


Case I —Sino auricular block In (*a*) the pause, which is almost exactly double two normal cycles, is ushered in by a slight quickening of the whole heart Thereafter there is a succession of long cycles of the same length In (*b*) bigeminy due to 3 2 sino auricular block

CASE II —Male, aged 31, medical man Had noticed irregularity of the heart for some ten years, since student days Typhoid aged 12 Life-long non-smoker and abstainer Complained of headache on walking Not fond of exercise

Examination—No abnormal cardiac signs No enlargement (radioscopy) Blood pressure systolic 120, diastolic 80 Urine normal Polygram showed sino-auricular block, confirmed by electrocardiogram (Fig 2)

FIG 2.

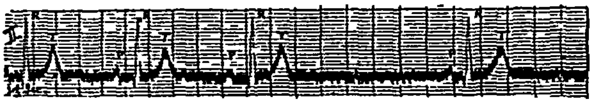


Case II —Sino auricular block In this instance the pause which measures nearly two normal cycles, is not preceded by any quickening of the heart though the cycle immediately succeeding the intermission is longer than normal

CASE III —Male, aged 51, warehouseman Influenza one year ago, not well since Two months ago felt suddenly ill and fainted, two weeks ago fainted again Absent from work eleven weeks Shortness of breath and slight pain over left margin and lower end of sternum No history of rheumatic fever Abstainer and moderate smoker

Examination—Pulse irregular showing dropped beats, rate varied between 60 and 70 beats a minute (Fig 3) Heart not enlarged No symptoms and no signs of failure Blood pressure, systolic 135, diastolic 100 After one month's observation an electrocardiogram showed no arrhythmia and at this time patient was at work and feeling well Two months later still slight irregularity was present, rate 62 beats a minute One year after the first visit an electrocardiogram showed no pauses and no arrhythmia and he had no complaints

FIG 3

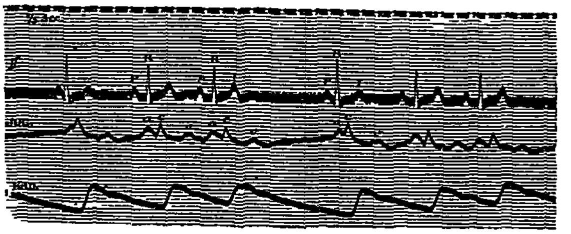


Case III —Sino auricular block The pause is almost exactly equal to the two cycles preceding it The P-R interval is shorter after the pause

CASE IV —Male, aged 41, furniture packer Pain under left breast, some breathlessness, faintness, palpitation and exhaustion, all for two years

Examination—Heart not enlarged (radioscopy) Blowing systolic murmur at the apex, pulse irregular, occasional "dropped beats," varying between 60 and 70 beats a minute (Fig 4) Blood pressure, systolic 140, diastolic 70 Wassermann reaction positive No symptoms and signs of failure Moderate smoker and moderate drinker Atropin gr 1/100 subcut reduced the number of pauses After two years' observation condition was much the same After five years' observation patient complained of nothing more than lassitude Electrocardiograms still showed sino-auricular block.

FIG 4



Case IV —Triple record of sino auricular block Electrocardiogram shows a pause nearly equalling two normal cycles The P-R and A C intervals are lengthened in successive beats before the pause This record was taken while respiration was held

The cases recorded in the literature before 1916, 14 in number, are fully dealt with by Levine[14] who

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gives a comprehensive table of them, together with four of his own His collected cases are one of Mackenzie,[16] four of Joachim,[12] two of Wenckeback,[32] one of Hewlett,[11] one of Gibson,[9] one of Rihl,[22] one of Laslett,[13] two of Riebold,[21] and one of Schott [26] He points out that the arrhythmia occurred after digitalis in ten cases, disappearing when its administration ceased. In four of the eight others this drug was not given and in the remaining four there is no note on the subject, though in two it may have been given, as heart failure was present Four cases were subject to paroxysmal auricular fibrillation (two of Levine,[14] Laslett,[13] and Riebold [21]) His own cases showed pauses equal in length to multiples of the normal heart cycle

He thinks that the variation in length of the normal cycle is due to a change in the rate of the pacemaker or in the time the impulse takes to reach the auricular musculature. It is not due entirely to the latter, for the P-P interval would become gradually longer until one sinus beat would be blocked, in one of his cases, the P-P intervals become shorter before the pause (cf. Lewis), as if the conduction of the impulse improves Sometimes the intervals lengthen and then shorten without any blocked beats, and in one instance of his an impulse is blocked after a short beat. The block depends on slight sinus arrhythmia Whenever the sinus rate increases beyond a certain point the node fails to conduct the impulse to the auricles

Forms of the Irregularity

The irregularity may take several forms, (a) the heart may intermit occasionally as described above, or (b) beats may be separated into groups by regular recurrence (as in Cases 1, 2, 5, 9, 10, 32, I), or (c) there may be abrupt slowing or quickening (Case 12, also reference 16, Fig 368 [3]) Sometimes the rhythm is abruptly halved, but more often the rate is slightly more than half the rapid rate, each of the long cycles being less than two of the short ones taken together; or there may be rarely a continuous bradycardia of perhaps 30 beats per minute (Case 11), which is distinguished from other forms of slow action by the way in which it accelerates in response to exercise, doubling at once, then quickening gradually, then after exertion slowly decreasing to 80 or 70, and then halving suddenly to its original rate The most recent discussion of the several forms of this irregularity is that of Lewis [15] Levine [14] describes a case in which the intervals were usually approximately double, but sometimes simple multiples of the normal beats and occasionally longer than two normal cycles, once equalling five cycles; this appears to be a parallel instance to three cases mentioned by White,[33] (his Cases 14, 15, and 16) of complete auricular standstill, which he terms complete sino-auricular block (from digitalis), this appears to be the only reference to complete blocking Long pauses of similar nature can be produced by pressure on the vagus nerve in the neck and in morphinised dogs with excised vagus (Robinson and Draper [23]), and in dogs injected with pituitrin (Resnik [20]).

Association with Auriculo-ventricular Block.

The frequent association of sino-auricular with auriculo-ventricular block is emphasised by Lewis,[15] who says that it is too frequent to be accidental In three of his four electrocardiograms conduction is distinctly impaired as shown by the prolonged P-R interval, shortening after each long diastole (also Cases 6, 8, and IV (Fig 4)) In my four cases there is no auriculo-ventricular block, except in Case IV, where the P-R interval is prolonged (Fig 4)

There have been a great many experiments on various types of animals, both warm-blooded and cold, designed to solve the problem of the origin of the impulse and the causation of sino-auricular block Thus, in 1910 Hering [10] cooled the sinus region in dogs and since then the node has been injured, Stannius ligatures have been applied and various procedures have been adopted to cut off communication between the whole node or different portions of the node and the auricle. Cushny,[3] employed aconitine and electrical stimulation, Eyster and Meek,[7] with textile leads worked out with great care the course of negativity which passes over the heart of a tortoise, and the same authors in another paper describe a great number of experiments which seem to show, among other things, that special paths of conduction exist in the auricles Rothberger [24] concludes from some recent experiments that there are two such paths from the lower end of the node, and Poulton and Dowling [19] believe that there is some direct connexion between node and ventricle, irrespective of the contracting auricle The existence of any such tissues of conduction between sinus and auricle is strenuously denied by Lewis on both anatomical and physiological grounds

Resnik,[20] in December, 1925, conducted some experiments at the Johns Hopkins Hospital on dogs with 0 5 to 1 c cm. of pituitrin, taking one lead from the sino-auricular node itself, the other being the ordinary lead II From these (three are published) he deduces that instead of there being a block between the node and auricle, the former fails to originate an impulse at all, the result of vagal influence He suggests the name "sino-auricular standstill"

Ætiology

The ætiology of sino-auricular block is often uncertain Digitalis has been cited as one of the causes by many authors (Levine,[14] Lewis,[15] Parkinson,[18] White,[33] and Cases 2, 4, 6, 7, 8, 14, 15, 16, 18) In the cases collected by Levine [14] it is to be noted that the use of digitalis was recorded definitely in 56 per cent of them, whereas in those included here the use of the drug was noted in only 25 per cent In the last figure are included White's three cases (Cases 14, 15, and 16) of complete sino-auricular block at Massachusetts General Hospital, but in a later publication[34] he mentions that he has observed six cases in which digitalis was primarily responsible

Other occasional causes reported are tobacco (Neuhof,[17] Cases 30, 31), atropine (Smith,[28] Case 20), salicylates (Sicard and Meara,[27] Cases 3 and 4), and obscure vagal influences Levine [14] adds febrile conditions, particularly rheumatic fever and chronic myocarditis, to the list, and White arteriosclerosis and hypertension

Frequency

There is no doubt that the condition is infrequent Smith[28] says that is not so rare as the paucity of the literature would have us believe; Levine[14] states that its frequency is greater than is recognised, and this view is shared by White [33] Some observers have too readily accepted the pauses so common in pronounced sinus arrhythmia as due to sino-auricular block Smith[28] is careful to emphasise this and admits that at least two of his cases (Cases 25 and 26) might be interpreted as examples of the former

It is certain that cases are rarely seen at a clinic such as that of the National Hospital for Diseases of the Heart, though practically all irregular rhythms are investigated by the electrocardiograph Not more than 11 cases at most had been observed at the Massachusetts General Hospital from 1914 to 1922.[34]

Symptoms and Associated Conditions

There are no symptoms indicative of sino-auricular block, and patients are not conscious of the intermissions In Case 9 (Straub[10]) alcoholic neuritis was present, and this is the only mention of alcohol as a concomitant In the author's Case 2 the patient was a life-long abstainer Smith's[28] cases (19, 20, 21) were from diphtheria wards, Schirmer's[25] (Case 32) had diphtheria bacilli in the throat, and Andersen's[1] (Case 29) had a history of diphtheria Some, however, of Smith's cases were suffering from other zymotic diseases—mumps (Case 23) and pertussis (Case 24) Venereal disease is mentioned in Straub's cases and in Case 4, and also in the former the fact of treatment with mercury, the Wassermann reaction was negative, but the Sachs Gorgi positive In Case 4 the

TABLE OF CASES REPORTED IN THE LITERATURE, 1916–26

No	Case and associated conditions	Special features
1	Stokes Female, 36 Arteriosclerosis, anginal pains	History of rheumatic fever and typhoid 3 2, 4 3, 5 4 types Atropine effects Polygrams
2	Danielopolu Male, 70 Slight cardiac failure, emphysema	Digitalis used. History of rheumatic fever 3 2, 4 3, 5 4 rhythms Atropine effects Swallowing temporarily abolished block
3	Sicard and Meara	Occasional dropped beats Salicylates
4	Sicard and Meara Male Acute rheumatism, endocarditis	Digitalis used Salicylates Polygram
5	Eyster and Evans Male, 31 Healthy	2 1 3 2, 4 3 types Atropine effects Nodal rhythm present Vagal stimulation effects
6	Parkinson Male, 35 Anginal pains	Digitalis used History of rheumatic fever and typhoid Occasional pauses Atropine effects Pressure on eye and vagi had no effect A-C interval increased.
7	Straub Male, 31 Aortic incompetence, mitral stenosis, nephritis	Digitalis used Occasional pauses Electrocardiogram
8	Straub Male, 59 Syphilis, gonorrhœa, iritis	Digitalis used. 2 1, 3 2 rhythm P-R interval increased
9	Straub Male, 29 Dyspnœa	History of rheumatic fever 3 2 type Quinidine temporarily abolished block Electrocardiogram
10	Straub Male, 75 Alcoholic neuritis	3 2, 2 1 type Electrocardiogram
11	Gallavardin et Dumas Male, 37	Pulse rate 34 beats a minute Rate doubled on violent exertion Block temporarily abolished by swallowing
12	White Male, 34 Athlete	Halving of rate one minute after running ¼ mile
13	White Female, 33 Obscure cough.	Electrocardiogram
14 15 16	White	Three cases of complete sino-auricular block at Massachusetts General Hospital Digitalis used in each.
17	White Aged 56 Cardiosclerosis, slight failure	—
18	Straub Male, 47 Dyspnœa, cardiac pain	Digitalis used Extrasystoles Some of the pauses due to ventricular escape
19	Smith Aged 5 Three months after diphtheria	Electrocardiogram
20	Smith Aged 4 Acute diphtheria	Atropine and strychnine caused block. Electrocardiogram.
21	Smith. Aged 8 Diphtheria, convalescent	Mental stimulation caused block to disappear
22	Smith. Aged 6	Block disappeared on fretting
23	Smith Aged 6 Mumps	Fourteenth day after swelling observed
24	Smith. Aged 4 Pertussis	Block present 13th day between paroxysms
25	Smith None	Present after exercise
26	Smith Aged 19	" " "
27	Brown. Male, 11 Acute arthritis, heart enlarged.	Salicylates Frequent pauses Atropine effects Vagal stimulation effects Electrocardiogram.
28	Poulton and Dowling Left hemiplegia, hyperpiesia	History of recent lobar pneumonia Block persisted for 12 years No atropine effects, vagal stimulation effects present
29	Andersen Male, 25 Heart enlarged.	History of diphtheria, scarlet fever, and influenza 3 2, 4 3 rhythms Quinidine temporarily abolished block.
30	Neuhof	Tobacco
31	Neuhof Myocarditis, cardiac failure	"
32	Schirmer Heart enlarged.	2 1, 3 1 types Diphtheria bacilli in throat
I	Male Aged 65 (see text)	Occasional dropped beats, also 3 2 type Observed 14 months Electrocardiogram
II	Male Aged 31 (see text)	Occasional dropped beats
III	Male Aged 51 (see text)	Occasional dropped beats P-R interval shorter after the pause Observed one year
IV	Male Aged 45 (see text)	Occasional dropped beats P-R interval lengthened before the pause Observed five years

Wassermann reaction was positive, though were there no clinical signs of syphilis There was a history of rheumatic fever in seven (Cases 1, 2, 3, 4, 6, 9, 27) and of typhoid in three (Cases 1, 6, 11). The general association is very much as outlined by Levine[14] and White[34]—(supra) myocarditis, rheumatism, general cardiosclerosis, and febrile conditions, but in many there is no discoverable cause or association of importance

Atropin is shown to have temporarily abolished the block in five cases (1 2, 5, 6, 27), swallowing in three (2, 5, 11), quinidine in two (9, 29) Pressure on the vagi increased the irregularity in three cases (5, 27, 28) and on the eyeball in two (11, 27) It is noted that in one case[6] pressure on vagi and on the eyeball had no effect Exertion, physical or mental, increased the arrhythmia in four cases (6, 22, 25, 26), and in one [21] caused it to disappear In one case[11] the heart-rate doubled on exertion and in one[12] it halved one minute after violent exercise

Diagnosis

The condition can only be diagnosed by graphic methods A slight preparatory quickening of the whole heart, followed by a pause equalling approximately *two normal heart cycles with a total absence* of "P" or "a" waves, occurring either alone or grouped, as above, is seen on the record. Sino-auricular block must be differentiated from (*a*) the extrasystole, (*b*) the occasional dropped beats of auricular-ventricular heart-block, (*c*) sinus bradycardia with ventricular escape, (*d*) a blocked premature auricular contraction, and (*e*) sinus arrhythmia, which often simulates sino-auricular block very closely Resnik[20] obtained in his experiments practically complete transitions between sino-auricular "standstill" and sinus arrhythmia He regards the condition as a special form of sinus arrhythmia

Prognosis and Treatment

There is little or nothing in the literature on the subject of prognosis Schirmer's case (Case 32) was reported as recovered and the four cases here described have shown no serious signs

No treatment is necessary. The condition is not pathological, is present in a few hearts, and may be regarded as physiological It does not by itself necessitate any interference with the patient's mode of life and can be neglected in considering his future

Summary

1 Four cases of sino-auricular block are described and a tabular summary of published cases since 1916 is furnished 2 It is a rare cause of intermission of the pulse, in which a whole heart beat fails to appear, and it is only recognisable by graphic methods 3 Atropin usually abolishes the block temporarily Pressure on the bulbus oculi and also on the vagus has varied effects 4 Ætiologically no one factor is responsible, though many cases are definitely due to digitalis administration Other suggested causes are the use of tobacco, salicylates, and infective conditions 5 There are no characteristic symptoms in association, and it produces none 6 The condition may be present without any symptoms or signs of cardiovascular disease, but it is often accompanied by slight grades of auriculo-ventricular block or other signs which indicate associated myocardial disease.

I wish to express my thanks to Dr John Parkinson, physician to the hospital, for permission to use the four cases shown and for his help

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(*Continued at foot of next page*)

GASTRIC SECRETION IN GRAVES'S DISEASE

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REHFUSS tests were made on 50 cases of hyperthyroidism Of these 22 showed achlorhydria They comprised 19 cases of Graves's disease and three of forme fruste Of the 19 cases of Graves's disease with achlorhydria, 15 were of more than two years' standing Hypochlorhydria occurred in 15 cases Of these, four were acute cases of Graves's disease, all of less than 11 months' standing; six of Graves's disease of one year or more, four of toxic adenoma, and one of puberty hyperplasia Normal chlorhydria occurred in nine cases Of these, three were acute cases of Graves's disease of less than one year's standing, one of chronic Graves's disease undergoing X ray treatment, two of toxic adenoma, two of forme fruste, and one of puberty hyperplasia High normal secretion was found in only four cases, the acidity (free HCl), however, never reaching higher than 65 (N/10 NaOH) These cases comprised one of puberty hyperplasia, one of forme fruste, one of toxic adenoma, and one of chronic exophthalmic goitre Table I is a summary of these cases

TABLE I

—	Achlor-hydria	Hypo chlor hydria	Normal	High N
Chronic Graves's disease (of more than two years' standing)	15	6	1	1
Acute Graves's disease (of less than one year's standing)	4	4	3	—
Toxic adenoma	—	4	2	1
Forme fruste	3	—	2	1
Puberty hyperplasia	—	1	1	1
Total	22	15	9	4

The average duration of symptoms in cases of Graves's disease with achlorhydria was 2 9 years, in cases of Graves's disease with hypochlorhydria, 1 1 years, of Graves's disease with normal secretion, 0 5 year Thus in the more acute cases the gastric secretion was least diminished. This suggests that the diminution of HCl secretion occurs in the course of the disease, and is not, in the majority of cases, a predisposing cause

Table II is a summary of the charts of the 50 test-meals

TABLE II

—		Achlor hydria	Hypo-chlor-hydria	Normal
Mucous secretion		N	N	N
Percentage of cases with rapid emptying stomach		90	50	24
Time of disappearance of starch or sugar in hours		0 89	1 5	2 1
Percentage of cases with much bile		60	50	40
Free HCl (N/10 NaOH)	(a)	—	15	47
	(b)	—	20	65
	(c)	—	5	35
Total acidity (N/10 NaOH)	(a)	27	42	59
	(b)	40	60	80
	(c)	15	32	40

N = normal (a) average, (b) maximum, (c) minimum

The chief conclusions to be drawn from these findings are (1) There is a constant tendency towards subnormal or absent secretion of HCl in Graves's disease (2) The secretion of HCl in cases of *toxic adenoma and puberty hyperplasia* is usually normal or subnormal but never absent (3) There is a strong tendency to regurgitation of bile in Graves's disease (4) The stomach empties very rapidly in Graves's disease (5) The *total acidity* is usually high in cases of achlorhydria

The rapidity of emptying of the stomach in Graves's disease is sometimes extraordinary In two cases the stomach contents passed into the duodenum in less than a quarter of an hour Each of these two cases showed achlorhydria and bile in practically every sample It was thought that the stomach-tube might have passed into the duodenum, but on repetition of the tests similar results were obtained A third test was made in one case when the patient was beginning to respond to treatment, and in this case starch was found after a quarter of an hour and sugar up to half an hour.

Explanations of Deficient Secretion of HCl in Graves's Disease

There are four plausible explanations of the lack of secretion of HCl in Graves's disease

The first is that the general toxic state of the patient leads to a catarrhal condition of the stomach This produces a physical obstruction to the work of the oxyntic cells, and the dilution and bathing of the stomach contents with mucus prevent the chemical stimulus to the secretion of gastric juice The resultant low acidity allows rapidity of emptying of the stomach through lack of chemical stimulus to the pylorus The objection to this theory is that the mucous secretion in the Graves's disease cases was not found to be greater than in cases with normal chlorhydria

The second explanation is that the low secretion of HCl is a congenital defect and provides a mode of entry into the intestinal tract for living bacteria The problem may be viewed in the same light as is the problem of achlorhydria in pernicious anæmia McCarrison [2] has put forward many suggestions on behalf of this theory He points out that correction of intestinal stasis has cured several cases of Graves's disease, even the wearing of an abdominal belt in a case of visceroptosis has effected a cure

A number of cases have followed acute infectious diseases when resistance to bacterial infection is low Foci of infection in the mouth or nasopharynx were discovered in 70 per cent of the present series of cases of Graves's disease

In Graves's disease there is an increase in the number of lymphocytes around the adenoid portions of the thyroid and in the lymphocytic aggregates at the hilum, together with a general increase in the

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Sino-auricular Block · References

(Continued from previous page)

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lymphoid tissue of the spleen, parathyroids, liver, kidneys, bone-marrow, and intestines This may fairly be considered a reaction to bacterial infection.

There are two main objections to this theory. The first one is that the diminution of HCl secretion occurs in the course of the disease, the second that the achylorhydria in 60 per cent of cases is only an apparent one In many cases, therefore, the achlorhydria cannot be considered as a predisposing cause of hyperthyroidism, although, at a later stage of the disease, it may enable toxins to be elaborated in the intestinal tract which will help to maintain the state of thyroid toxæmia

The third explanation is that the absence of HCl is due to regurgitation of duodenal contents In many of the cases a very great frequency of occurrence of bile is noted, and in 60 per cent of cases of achlorhydria bile was found in more than half the samples These cases also showed a relatively high total acidity Total chlorides were estimated in four cases of achlorhydria, in two of these the value was low and the chloride curve ran a more or less horizontal line, whilst in the other two the chlorides were found to be high and the curve to be of the climbing type, suggesting duodenal regurgitation A chloride estimation was also made on four cases of hypochlorhydria and on two cases of normal secretion, and in all these cases the high chloride values warranted some degree of duodenal regurgitation, which, in one or two cases, was very considerable indeed It was also found that the presence of bile was a fair indication of duodenal regurgitation, as the total chlorides attained their highest values in those samples containing bile Thus one may conclude that 60 per cent of the cases of achlorhydria, found in Graves's disease, are apparent achlorhydrias due to duodenal regurgitation

The rapid emptying of the stomach, found in Graves's disease, has already been noted This hurrying of the gastric contents is in accordance with the hypermotility of the lower intestinal tract leading to diarrhœa, a very common symptom in Graves's disease A patulous pylorus probably also accompanies the hypertonus of the stomach, and the two conditions, acting together, explain how duodenal contents may regurgitate in large amounts and give rise to an apparent achlorhydria or to an apparently low acid secretion

The Sympathetic Factor in Gastric Function

If a large number of achlorhydrias may be attributed to duodenal regurgitation, there still remain, however, 40 per cent of cases requiring an explanation As the number of true achlorhydria found in Graves's disease is five times the average incidence of achlorhydria in the normal person, it is suggested that the low or absent secretion of HCl in these cases may be caused by an inhibitory action due to overstimulation of the sympathetic system To test this theory, the sympathetic systems of two cases of hyperchlorhydria were stimulated by injections of adrenalin and the effect on gastric secretion was noted

The first was a case of dyspepsia of vagotonic type A test-meal showed the HCl curve to be of the climbing type and reaching 90 (N/10 NaOH) Bile was present in 3 out of the 13 samples taken at quarter-hour intervals Starch was *still* present at the end of the test—viz, three hours A second test was made, and at the end of the first hour a subcutaneous injection of ♏ xv, 1 in 1000 adrenalin was given. The chart showed a surprising change Following the injection of HCl curve dropped from 70 to nil. In a quarter of an hour the curve rose *again as* high as before, but at the end of the three hours fell very low and returned to zero No starch was found after two and a half hours Of the samples following the injection all but one contained bile

Rather impressed by this but in *some* doubt whether the sympathetic stimulation was due to adrenalin or the prick of the needle, it was decided to treat a similar case with adrenalin continued over some time

A patient with symptoms of duodenal ulcer was given a test-meal. The chart showed a high and climbing curve, the HCl reaching 88 (N/10 NaOH) To him were administered ♏ v of 1 in 1000 adrenalin subcutaneously every four hours, until, after the fifteenth injection, there occurred abruptly, symptoms of sympathetic stimulation—to wit, tachycardia, palpitation, and tremor Thereupon a second Rehfuss test was made This showed hypochlorhydria The HCl reached 23 (N/10 NaOH) as a maximum, the stomach emptied *only* 15 minutes sooner, and there was no alteration in the amount of bile, which was very small and occasional in both cases It is interesting to record that following the injections, the patient felt considerably better and was free from pain for several days

If stimulation of the sympathetic causes this change in gastric function, then paralysis of the sympathetic should have the opposite effect The drug best known to have such an action is nicotine It has already been pointed out how smoking increases the secretion of HCl, and it was found interesting to make Rehfuss tests on six cases of post-encephalitic Parkinsonism undergoing prolonged nicotine treatment (administered hypodermically in doses varying between 1/30–1/5 gr) in an attempt to reduce plastic tone The tests were made before and after treatment. One case showed no change The other five all showed an increase in HCl secretion In one case the HCl *rose from* 60 (N/10 NaOH) *to* 110, *after* ten days of nicotine treatment, 1/5 gr of the drug having been administered thrice daily

There is a certain amount of evidence to show the part played by the sympathetic in gastric secretion It is an accepted fact that the vagus and the sympathetic have an antagonistic effect on the motility of the stomach It is reasonable to suppose that their effects (if any) on gastric secretion are opposite Pavlov's[3] experiments have shown how secretion stops in frightened or enraged animals, presumably under strong sympathetic stimulation R Gaultier[1] has observed in the dog that section of the splanchnic nerve (sympathetic) always causes a pronounced hyperchlorhydria and that excision of the solar plexus has a similar effect He concludes that the sympathetic, by means of the circulation, is an important factor in regulating the acid secretion of the stomach Shortly before this, Shupfer[4] had drawn the same conclusion based on experiments which showed that section of *the anterior and* posterior roots of the fifth to the ninth dorsal segments (from which the sympathetic arises) caused a constant hyperchlorhydria

In concluding, one may say that the low acid secretion and the achlorhydria, which have been nearly a constant feature in the present series of cases of Graves's disease, can be explained by a twofold mechanism One, associated with overaction of the vagus, and causing both hastening of the gastric contents in passing through the stomach, and duodenal regurgitation. This would explain the cases of apparent achlorhydria The other, by a direct inhibitory action of the sympathetic on hydrochloric acid secretion and causing a true achlorhydria

Both the vagal and sympathetic types of achlorhydria may be ascribed to profound changes in the tone of the vagus and sympathetic nerves which are well known to occur in Graves's disease and which give rise to the other signs of hyperthyroidism

Summary

(1) Rehfuss tests were made on 50 cases of hyperthyroidism (2) Of these, 22 showed achlorhydria, 15 hypochlorhydria, 13 normal or high normal chlorhydria (3) The average duration of symptoms in achlorhydric cases was 2 9 years, in hypochlorhydric cases 1 1 years, in cases with normal secretion 0 5 year. This suggests that the diminution of HCl secretion occurs in the course of the disease, and is not a predisposing cause (4) Of the cases of achlorhydria, 60 per cent were due to duodenal regurgitation (5) An explanation has been offered of the cases of true achlorhydria found in Graves's disease

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DEVELOPMENT OF A TUMOUR (FIBRO-SARCOMA) AFTER INJECTION OF SALVARSAN.

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CHEMICAL irritants are relatively often found to be contributory causes in the formation of tumours, in most cases epithelial tumours (for example, skin-cancer), but also sarcomas Arsenic, when introduced into the organism, is to some extent deposited in the skin, and this renders it probable that eventual changes are most likely to occur there Thus we have the arsenic melanoses and hyperkeratoses following on long-continued administration of arsenic, and we find skin-cancer in consumers of arsenic This was pointed out by Hutchinson (1887), who observed skin-cancer in patients with psoriasis, to whom arsenic had for years been administered per os In order to investigate the question whether arsenic had really any tumour-producing power, Leitch and Kennaway [1] have fed rats and mice with food containing arsenic, but without any result They then proceeded to paint the skin with arsenic (alcoholic solution of arsenite of potassium) Only in one out of many experiments did they observe after about 12 weeks the growth of a tumour, which proved to be a squamous-cell carcinoma, and there was also metastasis to the lung The significance of chronic inflammations in the formation of tumours has also been recognised, most often epithelial tumours, although indubitable sarcomas, have also occurred [2]

The whole matter may be regarded from the viewpoint of Virchow's theory of irritation, and if we in the case about to be described assume that the arsenic injected has played a part in the subsequent development of a tumour, then the following statement by Borst [3] is very much to the point: "One may hold that by chemical and other irritations chronic inflammatory and regenerative processes may be maintained, during which there will occur such changes in the character of the cells as will make them incline under certain circumstances to malignity"

Clinical History

Female, aged 46, admitted to Drammen City Hospital, Norway, in October, 1925 Had an apical pulmonary affection eight years ago, in 1909 double salpingitis In November, 1910, she was admitted to hospital suffering from syphilis, with a genital chancre and a maculo-papulous squamating exanthema For this she was given on Dec 31st an injection of the salvarsan preparation "Hata 606," 0 50 g in the left interscapular region, whereupon the exanthema disappeared after a month In the following year she was again admitted, suffering from mucous tubercles on the genitals and in the mouth, and was treated with mercury On that occasion nothing was recorded respecting the site of the previous injection She now states that after the injection 15 years ago she got a "lump" at the place of injection, which had continued without appreciable change until about a year ago, when after an injury it began to increase in size, and has since grown steadily, sometimes causing slight pain

Condition on Admission—Healthy appearance, lungs, heart, and urine normal In the left interscapular region there is a well-defined, firm tumour, as large as a goose-egg, not tender to touch, and covered by normal, movable skin The tumour can be moved slightly from side to side

Operation—On Oct 22nd the tumour was removed by a longitudinal incision made through the *fascia and muscle* It was surrounded by a fibrous capsule, so that it could be extracted apparently in its entirety The wound healed rapidly. Nov. 25th No sign of recurrence

Pathological Report (Pathological Institute of the State Hospital, Prof Francis Harbitz)—Ovoid tumour, 11 × 5 × 4 cm in size, surrounded by a thin capsule, in part slightly adherent to surrounding connective tissue The surface is somewhat uneven and the cut surface greyish white and firm *At one point some necrosis At* one pole another tumour as large as a nut was found, separated from but *immediately adjacent* to the main tumour Microscopical sections of the tumour at different places showed *numerous, mostly long-shaped*, connective tissue cells and a fibrillary intercellular substance At some places *the cells lay close together* and showed atypical forms At other places there are more regular, proliferating connective tissue cells of *tumour-like* nature Section of the soft portion showed a more myxomatous connective tissue without *atypical cells* Only slight infiltration of leucocytes, at many places none being seen Diagnosis Fibrosarcoma

Discussion

"Hata 606" is the name first given to salvarsan, and it contains about 30 per cent of arsenic From the history of the case it was impossible to avoid the suggestion of an ætiological connexion between the intramuscular *injection* 15 years ago and the subsequent development of the tumour at the same spot The tumour was, therefore, sent to the Pharmacological Institute of the University of Oslo, and was examined for arsenic by Prof Poulsson with the following result.

> There were small quantities of arsenic in the tumour The examination was carried out by cutting out 50 g of the central portion of the tumour with sterile scissors, destroying the organic substance by means of hydrochloric acid and chlorate of potassium, and otherwise proceeding in the usual manner In the Marsh apparatus there appeared after some time a scanty coating with the appearance characteristic of arsenic, which on introduction of *dry* hydrogen sulphide assumed under gentle heat the yellow colour of arsenium sulphide

In the normal human body arsenic is of constant occurrence in very small quantities, especially in the thyroid gland, in the skin and hair, being probably *conveyed in the food* Gautier [4] estimates the total quantity of arsenic in the human body at 0 43 mg, 0 17 mg being found in the thyroid gland In the rest of the body, and mainly in skin and hair, there should thus remain about ¼ mg of arsenic In normal musculature Gautier and several other investigators found no arsenic [5]

Prof Poulsson states that, although no quantitative analysis was made, yet from the *investigation* made and from the distinctness of the test it may with certainty be assumed that the detected quantity of arsenic exceeds the amount normally present, otherwise, in *the relatively small portion of* tissue examined (50 g of tumour substance), arsenic could hardly have been detected so distinctly by the method employed As there was no evidence of the introduction of arsenic from other sources, it may be assumed that some of the arsenic injected must have remained at the place where the tumour afterwards appeared What is therefore remarkable in the first place is the long time the arsenic has persisted locally. In Poulsson's "*Pharmacology*" it is stated that some of the salvarsan passes through the body unchanged, and appears as such *in the urine from 5 to 30 minutes* after intravenous or intramuscular injection, while some of it goes over to form unknown combinations The main quantity is excreted in the course of the first few weeks, the remainder leaves the body slowly, so that the urine *reacts to the arsenic test* for several weeks, after arsenic poisoning for several months

The next point of interest *is* the tumour itself According to the patient's statement, an infiltrate remained at the point of injection for about 14 years, and, after a trauma (about which, however, there is room for doubt), it began to grow The infiltrate itself probably implied a chronic reactive inflammation, and doubt might, therefore, be entertained whether the tumour was not of inflammatory nature Judging from its clinical behaviour—its distinctly progressive growth, appearance, limitation by a capsule, as well as the whole microscopical picture with the scanty infiltration of leucocytes, localised only to some spots, it seems exceedingly probable that there has existed a genuine tumour, in this case mainly a fibroma, but at some places more of sarcomatous nature

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[3] Max Borst Allgemeine Pathologie der Malignen Geschwülste, p 71

[4] Cit from Poulsson's Pharmacology

[5] In Biochemische Zeitschrift, *1925* (vol clxv, parts 4–6), *Ivar Bang, in an article entitled* "Der physiologische Arsengehalt des *Harns* und *damit zusammenhängende* Fragen," has exhaustively discussed the question of arsenic in the organism He has partly refuted some of the older investigations, but makes it clear, however, that musculature (flesh), in comparison with most other kinds of tissue, is extremely poor *in* arsenic

THE TITRATION OF SCARLET FEVER ANTITOXIN IN RABBITS

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and
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It is generally admitted that one of the most urgent needs in connexion with recent work on scarlet fever is a method of titrating toxin and antitoxin by some means other than on human subjects Up to now the only promise of an animal test has come from the researches on goats of Kirkbride and Wheeler,[1] but the work has not yet been generally confirmed and the method is complicated by many difficulties

Many attempts have been made in the past to measure in various laboratory animals, particularly mice and rabbits, the protective value of antibacterial sera against living cultures of streptococci The results of most of this work in our own and other workers' experience have been disappointing It has been found, however, that rabbits could be killed with reasonable regularity by the intravenous injection of the "Dochez" streptococcus and certain other scarlet fever strains If the rabbits were injected intravenously 4 to 6 hours previously with an adequate amount of scarlet fever antitoxin, death did not take place or was delayed beyond the sixth day 10 c cm of a 20-hour tryptic digest broth culture of the *Streptococcus scarlatinæ*, given intravenously, killed in successive experiments 70 per cent of 63 rabbits of medium weight within 48 hours and 92 per cent within six days 5 c cm. of unconcentrated and 1 c cm or less of concentrated scarlet antitoxin protected the great majority of rabbits The protected animals, which survived for a longer period than six days, almost always developed a purulent arthritis of one or more joints, from which a pure culture of the streptococcus could usually be obtained

With sera other than streptococcal no protection was obtained, with various antistreptococcal sera, other than scarlatinal, from 17 to 29 per cent of the rabbits were protected by doses of 5 c cm of serum This group included unconcentrated sera prepared against streptococci of erysipelas, puerperal fever, and pyogenic infections Seventeen rabbits were injected with 5 c cm of a serum prepared by immunisation with filtrates of a strain of *Streptococcus pyogenes* Of these, 29 per cent survived This strain was isolated by Sir Frederick Andrewes from the septic finger of a nurse at St Bartholomew's Hospital It produced a toxin which gave a reaction indistinguishable from the Dick reaction in Dick-positive individuals, but no reaction in Dick-negative individuals, it had, therefore, a close antigenic relationship to the scarlet fever group of streptococci

Having found that specific scarlet fever antitoxins could be distinguished from other sera, an attempt was made to compare scarlet fever antitoxins of different values as tested by the Schultz-Charlton and passive immunity methods Three pairs of sera which had been placed by means of human tests in "order of merit" were compared Of two unconcentrated sera "A" was considered better than "B" on human tests Serum "A" in a dose of 10 c cm turned 13 out of 14 "Dick-positive reactors" negative within 24 hours, and 0 2 c cm of a 1 in 500 dilution blanched the rashes of 7 out of 15 patients Serum "B" turned none of 4 patients Dick-negative and blanched poorly the rashes of 4 out of 15 patients In the rabbit test 15 rabbits were injected with each of the two sera in corresponding doses—viz, 10 c cm, 5 c cm, and 1 c cm Ten of the rabbits in the "A" batch survived, but 5 only in the "B" batch

The second pair of sera consisted of a concentrated batch "D," and an unconcentrated, "E" By human tests it was found that with 2 5 c cm of serum "D," ten Dick-positive reactors became negative over night, and still gave a negative Dick test when retested on the twelfth day, whereas serum "E" in a dose of 10 c cm turned only 7 out of 10 patients negative In the rabbit test the percentages of survivals were at every dose higher for serum "D" than for serum "E" A dose of 1 c cm of serum "D" saved all three rabbits injected, while it took 10 c cm of serum "E" to produce the same result With a third pair of sera the same agreement between human and rabbit tests was found

We have not yet had an opportunity of comparing sera known to be efficient in the treatment of scarlet fever with sera which proved unsatisfactory, though this is the crucial test of any method of titration

In analysing these results, it was obviously most important to decide whether the protection of the rabbits was due to antitoxin per se, or to some other protective antibody produced in the horse in response to immunisation

The following observations have a bearing on this question (1) Many of the sera were experimentally made by injecting horses with bacteria-free filtrates of young cultures of streptococci, and were therefore as purely antitoxic as could be prepared (2) The serum of rabbits highly immunised against washed (toxin free) streptococci, though rich in agglutinins, had no protective value (3) Human convalescent serum had a small but definite protective value (4) The protective power of antitoxic sera against culture was lost if the serum had previously been treated with an adequate amount of toxin (5) Scarlet fever toxin, when given intravenously in sufficiently large quantities, killed 80 to 100 per cent of rabbits Scarlet fever antitoxin protected rabbits from death due to toxin, while normal horse serum and concentrated diphtheria antitoxin were without protective value These observations possibly provide a means of titrating scarlet fever toxin and antitoxin without the use of culture

These results, further details of which will be published at a later date, in conjunction with the agreement obtained with human tests, suggest, if they do not prove, that the test is a measure of "antitoxin" per se

It may be added that though scarlet fever antitoxin protects rabbits against hæmolytic streptococci from cases of scarlet fever, it also protects against the septicæmia due to certain other hæmolytic strains which have no obvious connexion with scarlet fever It is not clear at this stage, therefore, to what extent the test can be used conversely to identify the scarlet fever streptococcus Before this question can be answered it would be necessary to have much more information about the immunological relationships between streptococci of the hæmolytic group and their toxins than is yet forthcoming

Summary

(1) Rabbits can be killed with considerable regularity by intravenous injections of broth cultures of the *Streptococcus scarlatinæ*

(2) A test is described by means of which scarlet antitoxic sera can be compared among themselves

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[1] Kirkbride, Mary B and Wheeler, Mary W Proc Soc Exper Biol and Med, 1924, xxii, 86

and distinguished from other sera Scarlet fever antitoxin protects rabbits against the more acute phase of the septicæmia due to the streptococcus. Later, many of the protected animals develop arthritis and other manifestations of subacute infection

(3) The test is a quantitative one, "good" sera can be distinguished from "poor"

(4) In the case of three pairs of antitoxic sera differences were detected by the rabbit test corresponding to differences on human test

(5) The method, if confirmed in further work, may provide a means of titrating scarlet fever antitoxic serum in the laboratory.

PULMONARY TUBERCULOSIS

A SIMPLE PREVENTIVE

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SEVEN years ago I began to investigate the incidence of pulmonary tuberculosis in families exposed to infection, trying to find the principle of selection with a view to the prevention of the disease I began by assuming that every case of pulmonary tuberculosis was as certainly the result of infection as every case of measles Next, that if several persons are equally exposed to the same infection under the same conditions for the same time, their escape or infection must depend on the resistance of the individual. And the task I set myself was to find the secret of that resistance

My opportunities have been only those of a country practitioner in charge of a sanatorium for boys with about 10 beds I chose large families (to avoid freak results) and small houses (to ensure fairly equal exposure of each member) It is, of course, impossible that all should inhale the same number of bacilli per breath or per day, but it is sufficient for our purpose that they all live and sleep at home, healthy and infected mingling in the ordinary intercourse of daily life They will all inhale the same strains of bacilli mixed in the same proportions Whether those bacilli are many or few matters not, since everyone must breathe the air in that small home The attack is the same The conditions under which they have to meet it are the same All the countless factors of ventilation, sunlight, good or bad food, cleanliness, careful or careless coughing and spitting, &c, need not be taken into account They were the same for all And the hereditary resistance of the family, or at any rate of the children, may be assumed to be the same Everyone starts fair It is, in fact, a classic race and not a handicap

Search for Some Common Factor

After some years of such a test we need only inquire into the health of each member to know which have the better resistance I wished to find some common factor which all or most of the survivors possessed and all or most of the infected lacked None of the usual ætiological factors seemed to fit, though any one of them would account for a case here and there Nothing was of general application until I began to ask a very simple question—six words only—"Do you eat fat—or not?" I found that most of the healthy survivors had always done so, while the great bulk of the infected, the dead, and the dying had had a lifelong dislike for fat and had avoided it as far as possible all their lives In family after family I found this trivial peculiarity dominating the situation, brushing aside other influences, forming the dividing line between healthy and infected, living and dead In many families all the fat-eaters had escaped, while all the fat-shy (to use a convenient expression) had become infected In some the only fat-eater was the only person to escape In others the only fat-avoider was the only victim I began to see daylight

That these were no mere coincidences soon became apparent, for I found no such coincidences in the opposite direction. Exceptions and discrepancies occurred and often, but I have not yet found a single family where the usual position has been completely reversed—i e, where all the fat-eaters had become casualties and all the fat-shy remained well and healthy. It must be understood that it is a tendency only, although a very strong one The fat-eater has no absolute immunity; the fat-shy are not necessarily doomed, but the probability is always in that direction, and in the long run probabilities will tell Perhaps the best way to put it is this "When several persons are equally exposed to infection, those who habitually eat animal fat will probably escape—but may not, while those who avoid fat may escape—but probably will not"

Some Illustrative Cases

I have investigated more than 40 families fulfilling the conditions I have suggested Space forbids my publishing more than a few records I would assure my readers that all these families were free from tuberculosis (as far as is known) until they were exposed to infection And I would ask them to remember that these records are by no means exceptional—merely striking examples of a general rule

CASE 1 —The family of father, mother, and seven children lived in a five-roomed cottage in a Hampshire village They were exposed to infection by another son who came home in 1920 after war service in Russia and soon after developed a persistent cough, the nature of which was not discovered until one of the daughters had become infected From that time to this there have never been less than two positive cases in that home Here they are as they would appear in the usual family history

Mother, 57, P T pos	Father, 59, alive and well.
Sons	Daughters
Son, 30, alive and well	*Daughter, 21, died P T 1921*
Son, 28, died P T 1922	*Daughter, 17, died P T 1924*
Son, 22, alive and well	*Daughter, 29, P T pos advanced*
* *Son, 11, tub ankle*	
Son, 12, alive and well	

A mere casualty list telling us very little

The son of 28 seems to have been the introducer of infection Put him on one side and divide the rest into fat eaters and fat-shy This is best done by asking the mother, an expert witness on this matter, whose memory rarely fails Put them into parallel columns and a flood of light is thrown upon a very dark situation

FAT EATERS	FAT SHY
Father, 59, alive and well	*Mother, 59, P T pos*
Son, 30, alive and well	*Daughter, 21, died P T 1921*
	Daughter, 17, died P T 1924
	Daughter, 29, P T pos advanced
	* *Son, 11, tub ankle*
	Son, 12, alive and well

The son of 22 is away from home and I could get no reliable history of his fat habits He is almost certainly healthy because he is serving in the Marines

CASE 2 —This family moved into a badly infected house in (I think) 1920 Here is their present condition

FAT EATERS	FAT SHY
Father alive and well	*Mother dying P T*
Son, 18, alive and well	*Boy, 23, died P T 1926*
Daughter, 14, alive and well	*Girl, 18, died P T 1925*
Son, 9, alive and well	*Girl, 17, died P T 1925*
	Boy, 13, early P T
	Girl, 24, alive and well

Exceptions can often be explained by careful inquiries into the domestic details, especially as regards sleeping accommodation In this case the fat-shy girl of 24 who has escaped so far has all along shared a room with the healthy girl of 14 This little bit of shelter may have helped her

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* Cases of bone and joint tuberculosis are inserted for completeness I doubt if they follow the usual rule, at any rate, with the same frequency.

CASE 3—Infection was by the father, an old-standing positive case

FAT-EATERS	FAT-SHY
Mother 60 alive and well	*Son 25, died P T 1917*
Daughter, 33, alive and well	*Daughter, 25, died P T 1922*
	Daughter 21, died P T 1923
	Son, 20 P T. pos advanced
	Daughter, 35, doubtful.

The daughter of 35 is married and living at a distance. She is said to be "delicate" and has been refused by an insurance company, but possibly on her family history.

Now in these three families there were many of the fat-shy, and so there were many casualties Introducing infection here is like starting a fire in a timber yard There is plenty of inflammable material lying about and too often the conflagration only comes to an end for lack of fuel It is interesting to notice how closely a bad family history is associated with the presence of infection and many fat-shy members Of course, a spotless record may mean nothing more than absence of infection, just as a saint may be greatly indebted to his freedom from temptation But potentially a family of this sort is always weak and their resistance crumples up as soon as severe and continuous infection has to be faced Now, by way of contrast, here are some families where the fat-shy are few.

CASE 4—Infection was by a lodger.

FAT-EATERS.	FAT-SHY
Mother, alive and well	*Boy, 11, early P.T*
Father alive and well.	*Boy, 10, early P T*
Boy, alive and well	
Girl, alive and well	
Girl, alive and well	

CASE 5

FAT-EATERS	FAT-SHY
Father, alive and well	*Boy, 14, P T*
Mother, alive and well.	
Ten children alive and well.	

This family had a floor in a tenement house, and on the floor below lived a consumptive woman. There was little or no intervisiting but they shared a lavatory, and, of course, the stairs and passages were common property With such slight opportunities for infection one might be sure that only a fat-shy person could come to harm And so it turned out

CASE 6 is similar, except that the mother is the infecting agent. The father and eight children were exposed and again the only fat-shy person is singled out in uncanny fashion

FAT-EATERS	FAT-SHY
Father, alive and well	*Boy, 12, P T*
Seven children, alive and well	

That these things are chance common sense forbids I have chosen clear-cut cases for demonstration, of which I have many more but it must not be thought that all histories are clear cut Accidents will happen even to fat-eaters, but it will be found that in nearly every case their percentage of casualties is far below that of the fat-shy

Fat-eaters and Fat-avoiders

The classification is easy enough. We all have a certain liking or disliking for animal fat, which if uncontrolled determines our habits, and a direct question usually brings a direct answer The fat-eater eats all forms of fat, generally because he likes it, sometimes to avoid waste, or bad manners and the like Many prefer fat to lean and eat large quantities of it, but I have never been able to trace in them any advantage over the normal fat-eater The fat-shy sometimes avoid all forms but often make exceptions the common ones being butter, "crisp" (i e overcooked) fat ham and bacon and dripping People who eat a few fats only are clearly fat-shy and must be so classed. They do not eat enough for their protection. Especially is this the case with ham and bacon, which, oddly enough, few of them object to, and which seem to have no protective effect whatever That these fats are deficient in vitamins is suggestive. All the fat-shy agree in their dislike of mutton and beef fat, and from this one might think that these are the important fats for our purpose but clearly it may not be so at all but just that when only a few fats are eaten and the common ones rejected the total amount is too small or taken at too long intervals That everyone can eat fat if he chooses is certain. Of some 300 admissions to Heath End† 80 per cent had avoided fat all their lives Nevertheless, they all ate it "fair and square, as it comes," when the importance of so doing was frankly told them, and I can only recall one case (a hopelessly over-indulged child) where we had any difficulty

A Different Angle

By inquiring among patients at dispensaries and elsewhere I found that the large majority were fat-shy, and further that the infection to which their resistance had yielded was often very slight and occasional whereas the fat-eater seemed to require sudden exposure to many bacilli, usually continuing day after day for months Histories of infection are merely estimations of probabilities and prove nothing, but hearing a good many gave me that impression.

The fat-eater cannot suddenly share a bed with a consumptive, nor plunge into badly infected lodgings nor stand the introduction into his small office of a clerk who coughs incessantly and proceeds to close every possible crack to avoid draughts. But the fat-shy cannot meet an infectious friend once a week at a club, nor teach in a large, airy school-room where an infectious child came for just three days And many of the fat-shy were apparently exposed to quite occasional risk by their occupation Now we have seen the fat-eater exposed to very severe infection in the home and remaining healthy. Home infection is nearly always gradual, the air slowly becoming more and more laden with bacilli Most fat-eaters seem to be infected outside the home where sudden severe exposure is more likely, and it seemed that this element of suddenness was all-important. The fat-eater is apparently immune to moderate doses of bacilli and eventually to very large ones provided that the increase is fairly gradual I made a rough working hypothesis

A Rough Working Hypothesis

We may, I think, regard a family of mixed fat-eaters and fat-shy as patients who are about to have a vaccine treatment and we may think of fat as in some way very helpful if not essential to the formation of antibodies The fat-shy, with their low resistance, must be very cautiously dealt with; a very small initial dose, and carefully increased subsequent doses. In like manner they can inhale a very few bacilli at first and very slowly and gradually deal with more and more

With the fat-eater liberties can be taken His higher resistance allows a bigger initial dose and much less care about the subsequent doses In the same way he can inhale with impunity a comparatively large dose of tubercle bacilli and increase the number much more carelessly Doses which would be fatal to the other are positively beneficial to him helping him to build up an ever-increasing resistance He can stand anything in reason—anything that is, but a series of overwhelming doses to start with. Exceptions to the general rule must occur—it cannot be otherwise—the fat-shy may have very good luck or the fat-eater very bad luck. But it is to the last degree unlikely that all the fat-eaters in a large family would meet with such an extraordinary series of disasters as to break down all their resistances, while at the same time all the fat-shy would have such astonishing luck as to receive exactly the right immunising doses throughout

I tested this theory by applying it to marriage. (*a*) to a person already infectious and (*b*) to a healthy person who afterwards developed pulmonary tuber-

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† That this is an abnormal percentage is shown by a rough census in the elementary schools of Aldershot among children of about the same ages and the same social class It shows a small majority for the fat-eaters, 950 to 850

and distinguished from other sera Scarlet fever antitoxin protects rabbits against the more acute phase of the septicæmia due to the *streptococcus* Later, many of the protected animals develop arthritis and other manifestations of subacute infection.

(3) The test is a quantitative one, "good" sera can be distinguished from "poor"

(4) In the case of three pairs of antitoxic sera differences were detected by the rabbit test corresponding to differences on human test

(5) The method, if confirmed in further work, may provide a means of titrating scarlet fever antitoxic serum in the laboratory

PULMONARY TUBERCULOSIS

A SIMPLE PREVENTIVE

By W B VAILE, M R C S Eng.,
MEDICAL OFFICER TO THE CHURCH ARMY SANATORIUM FOR BOYS, HEATH END, ALDERSHOT

Seven years ago I began to investigate the incidence of pulmonary tuberculosis in families exposed to infection, trying to find the principle of selection with a view to the prevention of the disease I began by assuming that every case of pulmonary tuberculosis was as certainly the result of infection as every case of measles. Next, that if several persons are equally exposed to the same infection under the same conditions for the same time, their escape or infection must depend on the resistance of the individual And the task I set myself was to find the secret of that resistance

My opportunities have been only those of a country practitioner in charge of a sanatorium for boys with about 40 beds I chose large families (to avoid freak results) and small houses (to ensure fairly equal exposure of each member) It is, of course, impossible that all should inhale the same number of bacilli per breath or per day, but it is sufficient for our purpose that they all live and sleep at home, healthy and infected mingling in the ordinary intercourse of daily life They will all inhale the same strains of bacilli mixed in the same proportions Whether those bacilli are many or few matters not, since everyone must breathe the air in that small home The attack is the same The conditions under which they have to meet it are the same All the countless factors of ventilation, sunlight, good or bad food, cleanliness, careful or careless coughing and spitting, &c, need not be taken into account They were the same for all And the hereditary resistance of the family, or at any rate of the children, may be assumed to be the same Everyone starts fair It is, in fact, a classic race and not a handicap

Search for Some Common Factor

After some years of such a test we need only inquire into the health of each member to know which have the better resistance I wished to find some common factor which all or most of the survivors possessed and all or most of the infected lacked None of the usual ætiological factors seemed to fit, though any one of them would account for a case here and there Nothing was of general application until I began to ask a very simple question—six words only—"Do you eat fat—or not?" I found that most of the healthy survivors had always done so, while the great bulk of the infected, the dead, and the dying had had a lifelong dislike for fat and had avoided it as far as possible all their lives In family after family I found this trivial peculiarity dominating the situation, brushing aside other influences, forming the dividing line between healthy and infected, living and dead In many families all the fat-eaters had escaped, while all the fat-shy (to use a convenient expression) had become infected In some the only fat-eater was the only person to escape In others the only fat-avoider was the only victim I began to see daylight

That these were no mere coincidences soon became apparent, for I found no such coincidences in the opposite direction Exceptions and discrepancies occurred and often, but I have not yet found a single family where the usual position has been completely reversed—i e, where all the fat-eaters had become casualties and all the fat-shy remained well and healthy. *It must be understood that it is a tendency* only, although a very strong one The fat-eater has no absolute immunity, the fat-shy are not necessarily *doomed, but the probability is always in that direction,* and in the long run probabilities will tell Perhaps the best way to put it is this • "When several persons are equally exposed to infection, those who habitually eat animal fat will probably escape—but may not, while those who avoid fat may escape—but probably will not"

Some Illustrative Cases

I have investigated more than 40 families fulfilling the conditions I have suggested Space forbids my publishing more than a few records I would assure my readers that all these families were free from tuberculosis (as far as is known) until they were exposed to infection And I would ask them to remember that these records are by no means exceptional—merely striking examples of a general rule

Case 1 —The family of father, mother, and seven children lived in a five-roomed cottage in a Hampshire village They were exposed *to infection* by another son who came home in 1920 after war service in Russia and soon after developed a persistent cough, the nature of which was not discovered until one of the daughters had become infected From that time to this there have never been less than two positive cases in that home Here they are as they would appear in the usual family history

Mother, 57, P T pos	Father, 59, alive and well
Sons	Daughters
Son, 30, alive and well	*Daughter, 21, died P T 1921*
Son, 28, died P T 1922	*Daughter, 17, died P T 1924*
Son, 22, alive and well	*Daughter, 29, P.T pos advanced*
**Son, 11, tub ankle*	
Son, 12, alive and well	

A mere casualty list telling us very little

The son of 28 seems to have been the introducer of infection *Put him on one side and divide the rest* into fat eaters and fat-shy This is best done by asking the mother, an expert witness on this matter, whose memory rarely fails Put them into parallel columns and a flood of light is thrown upon a very dark situation

Fat-eaters	Fat shy
Father, 59, alive and well	*Mother, 59, P T pos*
Son, 30, alive and well	*Daughter, 21, died P T 1921*
	Daughter, 17, died P T 1924
	Daughter, 29, P T pos advanced
	**Son, 11, tub ankle*
	Son, 12, alive and well

The son of 22 is away from home and I could get no reliable history of his fat habits He is almost certainly healthy because he is serving in the Marines

Case 2 —This family moved into a badly infected house in (I think) 1920 Here is their present condition.

Fat eaters	Fat shy
Father alive and well	*Mother dying P T*
Son, 18, alive and well	*Boy, 23, died P T 1926*
Daughter, 14, alive and well	*Girl, 18, died P T 1925*
Son, 9, alive and well	*Girl, 17, died P T 1925*
	Boy, 13, early P T
	Girl, 24, alive and well

Exceptions can often be explained by careful inquiries into the domestic details, especially as regards sleeping accommodation In this case the fat-shy girl of 24 who has escaped so far has all along shared a room with the healthy girl of 14 This little bit of shelter may have helped her some cases have been seen with well-marked skin signs on the scrotum and buttocks

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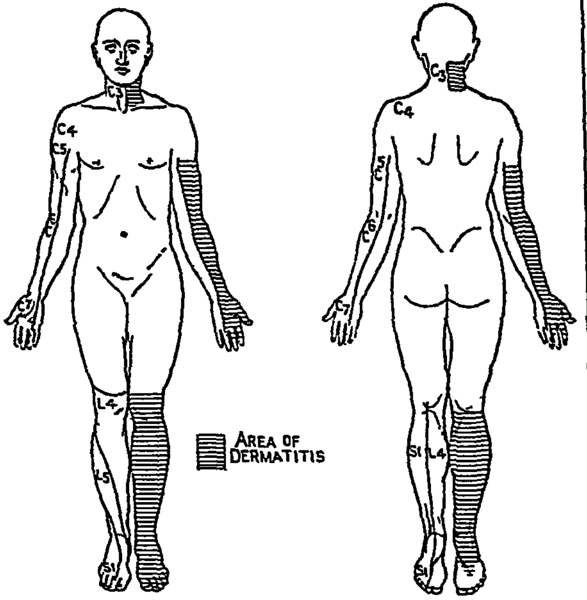
* Cases of bone and joint tuberculosis are inserted for completeness I doubt if they follow the usual rule, at any rate, with the same frequency

Usually, however, the skin lesions were most prominent in the skin supplied by the following nerves —Neck second, third, and fourth cervical, arms. fifth, sixth, and seventh cervical, legs fourth and fifth lumbar and first sacral The distribution of the dermatitis was absolutely symmetrical on both sides of the body



Diagrams showing distribution of the dermatitis, and cutaneous nerves

Resemblances to Myxœdema

From these observations it seems that the toxin of pellagra produces changes in the thyroid gland, leading to an insufficiency of thyroxin being secreted, with the result that pellagra in some respects resembles myxœdema.

Myxœdema	Pellagra
Skin thickened and rough	Skin thickened and rough
Slight œdema sometimes present	Slight œdema
Skin dry and scaly	Skin dry and scaly
Tongue swollen	Tongue sometimes swollen
Mental dullness and apathy	Mental dullness and apathy frequent

Another observer, G A Watson, in the Annual Report of the Board of Control for 1925, mentions a case which was first diagnosed as myxœdema and later developed a typical pellagrous dermatitis and died On post-mortem examination the thyroid gland was found to be practically absent W. Susman, writing in the *Edinburgh Medical Journal*, February, 1926, gives an account of the morbid anatomy and histology of two cases of pellagra, in which the thyroid gland was generally fibrosed. He concludes that the oldest lesion was in the thyroid

Treatment

In my series of cases the administration of thyroid gland tablets (2 gr) daily produced a rapid improvement in these pellagrins, some of whom had very severe skin lesions, the administration of the tablets caused a complete disappearance of the skin trouble in a few days (average about 10 to 15 days), and the patients felt physically improved and seemed mentally improved Out of over 100 pellagrins treated by this method in the year 1924, only eight had any recurrence of the condition during the year 1925 Because in pellagra there is an achlorhydria, the administration of acid hydrochlor dilutum in 5-minim doses three times daily was tried, but the condition of the patients undergoing this treatment remained unaltered Arsenical mixtures did not produce any alteration of the condition, and after observing the results of these three treatments, the thyroid treatment has been adopted as a routine as giving the most favourable results in the cases at the Central Prison, Zomba

Ætiology.

Pellagra is, apparently, due to some obscure toxin, probably microbic or parasitic in origin However, many of the cases in the Central Prison, Zomba, have been subjects of ankylostomiasis or bilharzia or a combination of the two conditions It is known that these two intestinal parasites are capable of producing a profound anæmia, resembling pernicious anæmia, and it is known that in the later stages of pernicious anæmia changes take place in the nervous system which may lead to subacute and combined sclerosis of the cord, therefore it is not difficult to regard the course of pellagra as being due to the following —

1. Infection of the individual with some parasite or micro-organism 2 Formation of a toxin producing · (*a*) changes in thyroid gland, (*b*) anæmia. Forty blood examinations were made, and all cases had a reduction in the number of red cells, varying from 500,000 to 1,000,000 The percentage hæmoglobin varied between 40 and 70, and a marked eosinophilia was present in most cases, (*c*) changes in nervous system leading to peripheral neuritis, melancholia, (*d*) achlorhydria, &c , (*e*) nephritis

From this observation it is apparent that there is in pellagra 1 A deficiency in thyroid secretion 2 A neuritis of certain nerves in preference to others 3 Skin lesions corresponding to the cutaneous distribution of those nerves

The above observations were made during the years 1924 and 1925, when all the prisoners were on a uniform diet, which consisted chiefly of rice or maize meal, with fish or meat, peas, beans, nuts, fresh vegetables and salt, giving an average food value of about 3000 calories per person per diem

In conclusion, I wish to thank Dr F. E Whitehead, Director of the Nyasaland Medical Service, for his permission to publish this article

Clinical and Laboratory Notes.

A CASE OF
HERNIA THROUGH THE TRANSVERSE MESOCOLON

By S T Irwin, M Ch Belf , F R C S Edin ,
SURGEON TO THE ROYAL VICTORIA HOSPITAL, BELFAST

The following case of hernia of the whole small intestine through the transverse mesocolon, following gastro-enterostomy, is, I think, of some rarity

In September, 1926, I was asked to see a woman aged 30 who had had a gastro-enterostomy for gastric ulcer seven years before After the operation the patient had been very ill the main symptom being an extreme degree of vomiting with prostration She made a very slow convalescence and had, indeed, never been quite well since the operation For the last few months she had been suffering from pain associated with diarrhœa almost immediately after food There was no passage of blood by the rectum She could take only a very small quantity of food at a time owing to a feeling of fullness, and though there was little actual vomiting, the patient almost constantly felt sick and had lost a stone and a half in weight About three years ago she had an attack of very severe pain and from that time onwards her sufferings had been accentuated

On examination the patient was pale, drawn, and emaciated The abdomen was retracted and generally tender No mass could be felt and there was no localised point of tenderness Rectal examination was negative. The patient's temperature was normal, but the pulse ran between 100 and 120 X ray examination was recommended, and Dr F P Montgomery reported considerable irregularity and puckering around the mouth of the stoma and extreme hypermotility of the meal, a suggestion was made that a gastrojejunal ulcer might be present. On later examination of the abdomen visible peristalsis in the small intestine was noticed and a provisional diagnosis of obstruction at the seat of a tuberculous ulcer near the lower end of the ileum was made

Operation was advised and was performed on Sept 25th On the abdomen being opened a large mass of distended culosis Of the first class I have no cases of my own Happily they are uncommon now But Sir Herman Weber's series, where nine husbands tuberculous before marriage lost 18 wives, are suggestive It is probable that some of the 18 were fat-eaters and others fat-shy, but all alike became infected

Looking through my small collection of cases of the second class I found that of 34 fat-eaters in this position only one became infected, while of six fat-shy persons four developed the disease

Prevention

We have seen the fat-eater asserting his superiority over his fat-shy brother in different ways from different angles Like the arithmetical hero "A," he wins every contest easily He has a defence good enough for ordinary needs, and if escape is possible he does escape Only when he makes impossible demands upon his resistance does it fail him

That everyone can eat fat is certain and that the fat-eater by choice and the fat-eater by persuasion are equally protected (which has been doubted) the following examples clearly show In each case the circumstances were parallel The father was dying of pulmonary tuberculosis, they were very poor, and the mother tried to persuade her children to eat fat for economy's sake It is evident that the result depends on her firmness and not at all on a natural taste for fat

First we have a total failure The children refused to touch it They hid it under their plates or in their pockets All became infected while the mother, who ate their leavings, escaped

CASE 7

FAT EATER	FAT SHY
Mother, alive and well	*Boy, 15, P T*
	Girl, 16, tub hip
	Boy, 13, P T
	Boy, 12, P T

In CASE 8 the mother ate fat herself and persuaded four out of her five children to do the same I believe that none liked it. The only fat avoider was the only one to show signs

FAT EATERS	FAT SHY
Mother, alive and well	*Boy, 13, P T*
Boy, alive and well	
Boy, alive and well	
Girl, alive and well	
Boy, alive and well	

In CASE 9 the mother was very firm and sensible Most of the children heartily disliked fat, but they did as they were told, and here is the result, six years after the father's death

FAT EATERS	FAT SHY
Mother, alive and well	None
Boy, 19, alive and well	
Girl, 16, alive and well	
Girl, 12, alive and well	
Boy, 11, alive and well	
Boy, 10, alive and well	

In CASE 10 the same result was brought about by a lucky accident The mother hit upon the idea of feeding the whole family on suet pudding, because it was cheap and nourishing It formed their staple food nearly every day She and her nine children all escaped

My own small experience is the same For six years in every home where I have had a case of pulmonary tuberculosis I have strongly advised the mother to insist upon everyone eating fat and to give them liberal and frequent suet I have no failures to record In no home where this has been done have any further cases been brought to my notice

There is, I think, every reason to hope that a wider knowledge of these simple facts among the general public may lead to a great diminution of pulmonary tuberculosis At present we are dependent for our safety on the intelligence and the goodwill of the infectious person We exhort him to protect us Here is a simple way of protecting ourselves, so easily, so effectively, and without the expenditure of an extra halfpenny either by the individual or by the community And if I have been able to help in that direction—why, that is the whole object of this paper

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OBSERVATIONS ON PELLAGRA IN NYASALAND

BY HORACE M. SHELLEY, M R C S ENG ,
MEDICAL OFFICER, NYASALAND GOVERNMENT

PELLAGRA is not a disease of recent origin, for "Strambio finds that some of the symptoms mentioned in Hippocrates may be those of pellagra" It is actually stated by some that St Francis of Assisi probably suffered from the disease In 1578 the disease was probably known as "Pellarella," but Gaspar Casal, in 1735, was the first to recognise that the gastro-intestinal, cutaneous, and mental symptoms exhibited by the sufferers constituted a clinical entity. In 1872 Lombroso began to study pellagra, and continued to do so until he died in 1909 Sambon commenced his work on the disease in 1905

Pellagra was first discovered to be present in Nyasaland by Stannus in 1910 , its presence was again commented on by Milne-Tough in 1922 Pellagra is prevalent practically all over the world , it occurs in both flat and hilly districts, and the cases are most numerous near moving water

There are three main theories as to the cause of the disease 1 The deficiency theory, which states that pellagra is due to the absence of a nitrogenous complex from the food 2 The maize theory, which states that the disease is produced by eating damaged or diseased maize 3 The parasitic theory, which states that the disease is due to infection with some living organism

Symptoms and Course

In short, the symptoms and signs of pellagra are · 1 Langour and debility, dyspepsia, and diarrhœa 2 Erythema of the face, back, arms, hands, chest, and legs 3 Improvements occur, followed by exacerbations, until, in the course of a few years, cerebro-spinal symptoms develop with paralysis, spastic gait, melancholia 4 Cachexia results The duration of the disease extends to 10, or, perhaps, 15 years

The following data have been obtained from observation of the pellagrins in the Central Prison Hospital, Zomba, and from cases occurring in the general population These data support the following opinions —

1 Pellagra is not a disease confined in Nyasaland solely to prisoners, as was previously thought, but occurs with comparative frequency amongst the general population Natives have actually commenced to undergo their sentences at the Central Prison with the disease already well marked Several cases have occurred in native soldiers of the King's African Rifles, and in the general population

2 Pellagra is not a disease which is caused solely by diet, because if that were so, there is no reason why the cases should not be more numerous in the Central Prison, where all prisoners receive diet of both the same quality and quantity, also, it appears that in certain British asylums the disease has become endemic, and in such every year a number of fresh cases are reported G A Watson, in the Ninth Annual Report of the Board of Control for the Year 1922, describes the outbreak in the Lancashire County Asylum, Rainhill, during the years 1913 to 1922 "From 1913 to 1918 inclusive 36 definite cases were noted, though there were several others of central neuritis with all the features of pellagra except the rash In 1919–20 no further cases were reported, and the survivors of previous years showed no recurrences In 1921 there was only one case, but in 1922 a severe outbreak occurred, 14 new cases being recorded The majority of these had been in the institute for a considerable time, and, therefore, the adequacy of the diet was carefully investigated It was found in 1922, the year of the severe outbreak, the diet was more generous and more varied than it had been in any previous year, even before the war"

3 It would appear that pellagra is a disease due to toxic absorption producing certain changes in the nervous system, leading to a neuritis of certain peripheral nerves This neuritis produces trophic changes in the areas of the skin supplied by these nerves, with the result that the skin becomes dry and scaly from interference with its nutrition These trophic lesions of the skin appear most marked on those parts of the body which are exposed to sunlight, but

lungs and hæmic bruits were heard at both the base and apex of heart The spleen was enlarged and was palpable as a hard mass extending for a hand's breadth below the costal margin All the superficial glands were palpable, but were soft and not greatly enlarged The temperature was 99 4° F , the pulse-rate was 100, and the respiration-rate 25 After suddenly vomiting some blood six hours after admission the patient died The following results were obtained from samples of blood taken before death Percentage of hæmoglobin, 35 , red blood corpuscles, 2,300,000 per c mm , white blood corpuscles, 50,000 97 per cent of the white corpuscles were of the lymphocytic type Poikilocytosis, anisocytosis, and diminution of pigment in the red cells were marked There were neither red cells nor malarial parasites The lymphocytes averaged 10 µ in diameter and were of a premature type, with large ovoid purple nucleus and a complete outer ring of blue protoplasm (Leishman's stain)

Post-mortem examination by Dr W A Young on Sept 28th The lungs were congested but not consolidated The myocardium, pericardium, and endocardium were spotted with petechial hæmorrhages , there was no valvular lesion of the heart The spleen was enlarged, thickened, and congested with dark areas resembling "hæmorrhages" in the medulla The liver was congested and had a fatty appearance The internal glands were not enlarged The kidneys showed hæmorrhages beneath the capsules, which stripped easily The cortex and medulla were clearly defined, the cortex being pale and the medulla dark and striated, with conspicuous red lines There were a few hæmorrhagic spots in the cortices The bone-marrow was uniformly dark red The stomach, when opened, displayed an oozing mucosa and dark black contents There was a hard chancre on the glans penis Sections were made of the liver, kidneys, and spleen, and smears taken from the bone-marrow The bone-marrow smears stained badly but showed a big preponderance of lymphocytes The spleen pulp showed an enormous number of lymphocytes and also thickened trabeculæ and evidence of blood destruction No malarial parasites were seen The liver was fatty and in both this organ and the kidneys there was an infiltration of lymphocytes

The points which arose for consideration were the effect of the intravenous arsenic on the presumably already existing disease, and the possible part played by the *Treponema pallidum* The onset of all the severe terminal symptoms after the injection of novarsenobillon seems to indicate that the drug precipitated death and caused the fatal exacerbation

Our thanks are due to Dr A J R O'Brien, surgical specialist, into whose ward the case was admitted and to the director of medical and sanitary services. Gold Coast, for permission to publish these notes

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Medical Societies.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A MEETING of this Society was held at Leeds on Dec 17th, when Mr W GOUGH, the President, delivered a valedictory address, after which Dr D DOUGAL (Manchester) described an

Unusual Diffuse Uterine Tumour

The patient was a single woman aged 43, whose main symptom was hæmorrhage, which had been constant for about five months Before this time she had had menorrhagia for about a year She had very little pain A diagnosis of uterine fibroid was made and on Oct 25th, 1926, Dr Dougal removed the uterus subtotally, together with the left appendage , the right ovary was left behind as the patient was very anxious not to have both ovaries removed Recovery was uninterrupted and she was discharged within three weeks

The uterus was enlarged and globular, about the size of a two months' pregnancy, and very hard It was not encapsuled, but had polypoid extensions into the cavity, and Dr. Dougal thought that the tumour was probably an adenomyoma becoming submucous, but on microscopical section no obvious glandular structures were seen This seemed very unusual, but a description of a similar growth, written in 1919 by D B Casler, was later found.

The tumour was in the fundus of the uterus, slightly on the posterior aspect It was a diffuse growth and consisted of fibro muscular trabeculæ, among which were scattered islands of softer tissue These islands projected from the surface on section and gave the tumour a very peculiar appearance The cut surface had not the homogeneous cheesy appearance usually associated with sarcomata, and there was no cystic formation The cavity of the uterus was occupied by a number of polypi pale in colour These again did not suggest sarcoma They consisted of tissue very similar to the endometrial stroma , there were many oval cells closely packed together, and at the inner part there was a good deal of blood extravasation The polypi were covered by a single layer of columnar epithelium and no glands were to be seen None of the cells were definitely of malignant type Lining the unaffected parts of the endometrium the mucous membrane was normal but somewhat compressed, especially as it approached the polypoid formation Further in the uterine wall islands of cellular tissue lay amidst the muscular bundles , here again the cells were of the same type, and there was no necrosis The growth had seemingly pushed in among the muscular bundles and displaced them, or in places had actually destroyed them by compression There were areas where the stromal tissue looked as though it were travelling along veins or lymphatics, but it was doubtful if it had done so Nearer the serous surface some of the cellular spaces had a somewhat different appearance In these, in addition to the ordinary stroma cells there were a few lines of larger cells which appeared to be the remains of broken-down glands

The tumour, said Dr. Dougal, was evidently either a sarcoma or a benign tumour of the endometrial stroma which had grown first into the wall of the uterus and later towards the cavity in the form of polypi Casler's case had been of exactly similar type, and he had considered it to be an endometrioma without glands

The PRESIDENT said that he thought that the tumour was probably an endometrioma —Prof M H. PHILLIPS (Sheffield) said that on first examining the sections he had regarded the growth as a sarcoma, but he had come round to the view that it was an endometrioma —Mr W W KING (Sheffield) said that if endometrial stroma was invading the muscle the tumour should be described as a sarcoma —It was decided to refer the specimen to the Manchester Pathological Subcommittee

Mr King then described two cases of

Concealed Accidental Hæmorrhage

with special reference to the histological condition of the muscle

CASE 1 —A multipara, aged 33, eight months' pregnant, had had abdominal pain and bleeding for a week She presented the typical picture of concealed accidental hæmorrhage , she was pale, she had a rapid pulse, and the uterus was hard and tender There was no urine in the bladder At operation the uterus was plum-coloured from effused blood There was free blood in the peritoneal cavity and large hæmatomata in both broad ligaments Hysterectomy was performed, but the patient died in a few hours from shock

CASE 2 —An unmarried girl, aged 22, was not known to be pregnant until she was taken ill She was thought to be in labour, as the cervix was dilating and there was a little hæmorrhage The uterus was hard, but not tender The pulse-rate was 80, but increased a few hours later Jaundice was noted, and the uterus, though still hard, was not tender A diagnosis of concealed accidental hæmorrhage was made The bladder was empty and no urine had been passed for 12 hours At operation the uterus was plum-coloured and there were large hæmatomata in the broad ligament, but no free blood in the peritoneal cavity Cæsarean section was performed The uterus contracted well, but the patient died an hour later from shock

Histological examination of the uterine muscle in both cases showed that the muscle was quite healthy except for a few small areas which had apparently been cut off by hæmorrhage, and in which the fibres stained badly and the nuclei were indistinct The myometrium was infiltrated with blood and the extravasation was most marked at the inner and outer surface There was no evidence of permeation through the uterine wall, such as might have been expected if the blood had spread outwards from the cavity of the uterus Thrombosed vessels were to be seen In the first case leucocytes were present under the retroplacental hæmorrhage and around some of the vessels They were apparently phagocytic rather than inflammatory in origin

A uterus was also examined which had been removed from a woman who died shortly after an ordinary antepartum hæmorrhage Naked-eye hæmorrhages could easily be seen on the surface and in the muscle The histological appearance was identical with that of the other specimens except that small intestine presented, and it was only with difficulty that its limits could be identified It seemed at first that the small intestine was adherent to the front of the transverse colon Further examination revealed the fact that the whole of the small intestine had passed through the opening in the transverse mesocolon which had been used for the anastomosis It had then passed through a slit in the gastrocolic omentum The opening was comparatively free and the small intestine was easily reduced After the small intestine had been withdrawn the opening in the gastrocolic omentum was closed and the edge of the opening in the transverse mesocolon was sutured to the gastro-enterostomy junction Owing to gross dilatation of the duodenum and the presence of a long loop of jejunum an entero-anastomosis was also done Operation was well borne and convalescence uneventful

At the end of November the patient reported that she had been quite well since the operation, she takes most kinds of food without discomfort, but owing to lack of chewing teeth has avoided red meats The gain in weight has been about one and a half stones

I have only once before seen a hernia through the opening in the transverse mesocolon, and that was in one of the early cases of gastro-enterostomy done in Belfast about 20 years ago This patient died of acute intestinal obstruction. The condition is now rare owing to the universal practice of suturing the transverse mesocolon to the stomach in the neighbourhood of the anastomosis The interest in the present case arises from (1) the extent of the hernia; (2) the difficulty in determining at what stage in the patient's post-operative history the hernia occurred, (3) the fortuitous circumstance which allowed the small intestine to pass forwards through a slit in the gastrocolic omentum, thus preventing an accumulation of small intestine in the lesser sac, (4) the fact that the patient recovered from what under ordinary circumstances would have been a strangulated internal hernia

A CASE OF BRANCHIAL CYST

By J W Thomson, M B, C M Aberd
SURGEON TO CLAYTON HOSPITAL, WAKEFIELD

The following case of branchial cyst presented some unusual features

A man, aged 35, was sent to the ear and throat department of the Wakefield Hospital in July, 1925, with a suggestion that he was suffering from tuberculous disease of the larynx Examination proving negative he was referred to me

History —In July, 1924, he first noticed a swelling in the left side of the neck It gradually increased in size until it became as large as half a cricket ball At this stage he had pain along the alveolar margin under the lobule of the ear and under the left shoulder, and headache The swelling and pain disappeared after a sudden discharge from the mouth of a yellowish jelly-like substance There were several such occurrences between this date and the end of the year In January, 1925, the swelling was associated with huskiness of the voice In March, 1925, he became an out-patient at another institution, from which it has been ascertained that there was fixation of the left vocal cord and that X ray examination of the chest for tuberculous disease was negative His condition continued to deteriorate The intervals between the attacks became shorter, the discharge was redder, the pain was more severe, and, when the swelling was at its height, dysphagia, dyspnœa, and aphonia completed the picture of misery

Examination —The patient was pale and thin and dejected and his voice was hoarse There was a somewhat tense swelling the size of a tangerine orange on the left side of the neck about the level of the upper border of the thyroid cartilage The skin was not involved and the swelling was not translucent There was fluctuation and the outer border was overlapped by the sternomastoid muscle

Diagnosis —Whilst branchial cysts must be differentiated from tuberculous glands, cystic hygromata and several other conditions, the history of this case made it probable that this was a branchial cyst

Operation —The cyst had ruptured on the previous day just before admission to hospital so that it was not possible to obtain a specimen of the fluid, and the outline of the neck was normal, showing no trace of any swelling An ample transverse incision revealed a flaccid sac under the deep fascia It was easily freed from the sternomastoid and the great vessels, and as it passed inwards it was detached from the left lamella of the larynx and the greater cornu of the hyoid bone From these attachments the narrowing sac passed backwards and inwards to the lateral wall of the pharynx The opening into the pharynx admitted the index-finger The dissection here became difficult, owing to the depth of the wound and the firm attachment of the cyst to surrounding structures, and somewhat dangerous from proximity to the larynx, and I was not satisfied with its thoroughness The cyst did not pass between the external and internal carotids, nor did it appear to thin the sterno mastoid The wound was packed and the following day some of the packing appeared in the pharynx Subsequently a tampon drain was used The patient was discharged on August 12th, 1925 Two months afterwards he was alert and vigorous and could, by some manipulation of the cervical muscle, express from the wound a drop or two of sero purulent fluid His voice had lost its hoarseness December, 1926 the external wound is healed and there is no swelling He is in good health, but there is still some slight discharge of fluid from the mouth at varying intervals

Pathological Report —The epithelial lining is very irregular both as regards the appearance of the cells and the number of layers of cells The number of layers varies from four or five more or less cylindrical cells, particularly where the cyst wall is much folded, to only one layer of cubical cells in other places In many places the epithelium is not well defined from the underlying tissue The wall is composed of fibrous tissue for the most part very loose in structure and containing many blood-vessels This tissue on the outer side penetrates irregularly among the surrounding muscle-fibres, so that there is no definite outer limit to the cyst There are one or two small collections of lymphoid tissue present

Discussion.

According to E Wyllis Andrews[1] there are five forms of branchial cysts or fistulæ (1) Complete branchial fistulæ with outer and inner openings (2) Incomplete external fistulæ with outer openings only (3) Incomplete internal fistulæ with inner openings only (4) Branchial cysts with no inner or outer opening (5) Branchial dermoids This case does not quite conform to any of these Any portion of the cleft may be obliterated in such a manner as to form a cyst, or it may become obliterated at several sites, thus forming several cysts[2]

Branchial cysts, which are situated near the skin, are lined with squamous epithelium and are of the nature of dermoid cysts They contain an opaque fluid of striking similarity to tuberculous pus and microscopically they are found to contain cholesterol and squamous epithelium cells[3] If deeply placed the cysts are lined with cylindrical cells and contain a glairy mucoid fluid The latter seldom give rise to symptoms

A CASE OF
ACUTE LEUKÆMIA COMPLICATED BY SYPHILIS

By A J Hawe, M B Liverp, D T M & H,
M R C S Eng,
AND
F S Paterson, M B Edin, D T M Liverp,
MEDICAL OFFICERS, WEST AFRICAN MEDICAL STAFF

The following case presents some points of interest The association of lymphatic leukæmia with recently acquired syphilis, and the rapidly fatal exacerbation of symptoms after treatment with intravenous arsenic, are of unusual occurrence The diagnosis, which was made some hours before the patient's death, was verified by post-mortem examination

The patient, a male African, aged 34, was being treated for syphilis in the out-patient department of the Gold Coast Hospital He attended the hospital with early syphilis on Sept 14th, 1926, and received 0 3 g of novarsenobillon intravenously He returned 13 days later very ill and suffering from advanced anæmia, and asserted that all his symptoms dated from the injection of N A B

Examination showed him to be profoundly anæmic, with blanched mucous membranes and bleeding gums, and very dyspnœic There was advanced pyorrhœa alveolaris and the gums oozed blood and a little pus The tongue was covered with a brown fur Both eyes were discoloured with sub-conjunctival hæmorrhages and some jaundice was discovered on close examination Moist sounds were audible in both fibroid of the lower pole of the uterus or to a non-pregnant horn of a bicornuate uterus

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[1] Keen's Surgery, iii, 278 [2] Bickham's Operative Surg iii, 699
[3] Hamilton Bailey British Journal of Surgery, 1922–23, x, 56.

At the Cæsarean section which was immediately performed the lower uterine segment was found stretched over the lower pole of the fœtus, removal of which allowed elevation of the uterus including the intrapelvic portion which was non-adherent and easily released, being held down by a prominent sacral promontory The appearance of the uterus at this stage was bicornuate, the left cornu, which contained the placenta, was found to be that portion of the uterus which was incarcerated in the pelvis After the organ had been manipulated to secure good contraction, the dividing ridge gradually disappeared and all trace of the bicornuate appearance was lost before the abdomen was closed

In this case, said Dr. Lochrane, it was the rather less distensible part of the uterine wall, comprising the site of placental attachment, which had been incarcerated or sacculated Without being able to give any figures he was under the impression that a similar observation had been made by others, and this suggested one possible explanation of this form of partial incarceration of the uterus.

Dr H A Lavelle reported a case of

Rupture of the Bladder followed by Vesico-vaginal Fistula

The patient, aged 34, was a 2-para 32 weeks pregnant, and was admitted to hospital on Dec 31st, 1925, following an unsuccessful delivery with forceps Examination revealed laceration of the vaginal walls with evidence of injury to the bladder, 2 oz of blood being drawn off by catheter A large hydrocephalic head partially fixed in the brim was palpated, craniotomy was done, and the fœtus was easily delivered After operation the patient suffered from incontinence of urine, diarrhœa, and signs of lower abdominal peritonitis accompanied by a pelvic swelling The temperature remained normal until the seventeenth day after admission On the twenty-first day the swelling, which then reached to the level of the umbilicus, disappeared, following the discharge of 4–5 pints of foul-smelling pus per vaginam Except for incontinence of urine the patient made an uninterrupted recovery, but she was readmitted a month ago for the closure of a vesico-vaginal fistula ¾ in from the cervix

The abdominal swelling, said Dr Lavelle, was undoubtedly due to extraperitoneal extravasation of urine, and it was interesting that this should occur in the presence of a vesico-vaginal opening He thought it probable that the fistula dated from the sudden discharge of pus and that the incontinence previous to this was due to failure of the sphincter

Dr Lavelle also described a case of inversion of uterus

Dr Elizabeth Ashby reported a case of rupture of the lower uterine segment during Cæsarean section and a case of fits during pregnancy

A discussion followed in which the President, Mr C E Purslow, Mr Maslen Jones, Mr A M Webber, and Mr A B Danby took part

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH

Blood Pressure

On Dec 14th Prof Murray Lyon reviewed first the factors influencing the blood pressure and showed how the pressure may be altered by the viscosity of the blood, by posture and by mental excitement, muscular effort, and digestion The effects of these also vary, he pointed out, according to the acceleration or slowing of the heart-beat Discussing unduly low blood pressure, Prof Lyon instanced cases of histamine poisoning with peripheral dilatation and loss of blood fluid, which give, he said, a clue to treatment, which should be by transfusion with sugar, saline, or gum solution, the aim being to increase the volume of the blood It is noteworthy that a high blood pressure may be coexistent with a failing heart The question whether it is advisable to attempt to reduce a high pressure he answered by saying that probably an attempt to do so should be made in most cases; results will show whether it is wise to go on with the treatment Prof Lyon emphasised the importance of physical and mental rest, which should be as complete as possible, in the over-stout and flabby, however, the value of graduated exercise is not to be overlooked As regards diet, the danger seems to lie not so much in an excess of protein as in overeating generally A salt-poor or salt-free diet appears useful in some cases He drew attention to the benefit to be derived from venesection, the removal of 3–20 oz. of blood being followed by a fall of pressure which persists Discussing the influence of drugs, he suggested that the almost mysterious effects of potassium iodide may be due to a power to reduce the viscosity of the blood Experimentally, he said, the action of tissue extracts is undoubted, but it has still to be confirmed clinically

LIVERPOOL MEDICAL INSTITUTION

A meeting of this Institution was held on Dec 16th, when Prof R E Kelly read a paper on the

Surgery of the Common Bile-duct,

based on records of 50 cases in which the common duct was explored Amongst conclusions drawn from these, he said, were (1) that the common duct may be packed with stones without jaundice, and even without pain, (2) that stones may be found in the common duct when the gall-bladder is enlarged, (3) that malignant disease may be associated with attacks of pain and a variation in the depth of the jaundice; (4) that stones may be associated with deepening jaundice and no pain ; and (5) that malignant disease and stones may be associated Mere palpation of the common duct was insufficient to give accurate information of the condition of the duct or its contents Every dilated common duct should be explored with the finger, probe, or catheter, and failure to reach the duodenum by these means should be followed by a transduodenal choledochotomy Prof Kelly discussed the difficulty of distinguishing malignant disease from impacted stones in the ampulla of Vater, and said that he thought that malignant disease in this situation was very malignant, and that cures were sometimes due to mistaken diagnosis As regards the details of operation he had used all the incisions recommended, and for particular reasons liked them all He thought, however, that in very obese patients who had a wide costal angle the complete transverse incision gave wonderful access and a strong scar On many occasions he had used the double catheter, one was placed upwards into the hepatic duct and the other down into the duodenum, and the latter served for liquid nourishment

Dr Wallace Jones read a paper on

Vital Capacity in Heart Disease

In his experiments, he said, he had used a simple water spirometer, the readings being expressed as percentages of the standard normal vital capacity calculated by West's formula Fifty normal men and 50 normal women were examined to see how closely the actual vital capacity corresponded with the calculated vital capacity The result showed that though marked individual variation occurred, the average figure was very close to the calculated normal In organic cardiac disease there was a marked fall in the reading, the average being between 50 per cent and 60 per cent of the normal figure The vital capacity was lowest in the mitral stenosis group, especially when mitral stenosis was associated with auricular fibrillation In functional cardiac disease the average reading was 85 per cent, a very high figure in view of the marked dyspnœa generally associated with this condition A group of cases was also kept under observation for a considerable time, and though the vital capacity improved with increase in the cardiac reserve power, the readings only followed slowly the changes in the condition of the heart it was possible to demonstrate the actual rupture of a vein This appeared to show, said Mr. King, that there was serious mechanical obstruction to the venous flow The whole picture of the uteri, both to the naked eye and histologically, suggested the occlusion of the large vessels rather than a permeation of the blood through them as a result of damage to their endothelial lining Young had noted the same fact, and postulated an intravascular clotting from some unknown cause Morse explained the appearance of the uterus upon a theory of torsion of the whole uterus, and Pollock and others had noted extreme torsion of the uterus from left to right Torsion of myomatous uteri was well known to occur, so that there was nothing impossible in a theory of torsion of the pregnant uterus The greatest difficulty in accepting this explanation was the frequency of albuminuria at the time of hæmorrhage There was no sufficient evidence that albuminuria often preceded accidental hæmorrhage, so it could not be causal The condition was generally considered to be a manifestation of toxæmia, but if so it was different, as Whitridge Williams had said, from any of the ordinary types of pregnancy toxæmia Young stated that he considered that the albuminuria was only the result of the autolysis of the separated placenta, but his theory was as yet unproved Hofbauer had produced evidence in favour of histamine as the causative factor, and had reproduced in guinea-pigs the phenomena of concealed accidental hæmorrhage by causing acute histamine poisoning The correct treatment was intimately bound up with the condition of the uterine muscle Hysterectomy had been advocated because the muscle was supposed to be diseased, but it had now been histologically proved that it was not, and clinically it was well recognised that it had not lost its contractile powers and that repeated pregnancies were possible and safe Save in exceptional cases there was, therefore, no justification for Cæsarean section in these cases G FitzGibbon had treated some cases of concealed accidental hæmorrhage with success by palliative measures, and this appeared to be rational It was irrational to operate upon a woman in profound shock without any clearly defined reason, as had been done in the past

Prof FLETCHER SHAW (Manchester) said that Mr King had cited the figures of a number of maternity hospitals, showing that albuminuria only occurred in about 30 per cent of the cases of accidental hæmorrhage, and had quoted Whitridge Williams as giving the figure as 26 per cent These figures he disagreed with, and thought the mistake arose from the difficulty in making a diagnosis of accidental hæmorrhage When a patient, far advanced in pregnancy, was brought into a maternity hospital suffering from hæmorrhage the case was diagnosed as one of placenta prævia if the placenta could be felt, and in other cases the diagnosis of accidental hæmorrhage was made The cases of accidental hæmorrhage thus diagnosed fell into two main clinical groups In one of them the symptoms were comparatively slight, especially the symptom of shock, this group contained the great bulk of these patients, and he felt sure the large majority of them were really cases of marginal placenta prævia The treatment of these cases was very simple, as practically all the patients recovered if the membranes were ruptured and ergot or pituitrin was administered, or if—as was done by the Dublin School—the vagina was tightly packed The other clinical group contained a comparatively small number of cases, but here the patient suffered severely from shock and signs of hæmorrhage These were the patients in whom treatment was not always satisfactory These were definitely cases of accidental hæmorrhage, and in his experience every one of them had albuminuria It was quite possible there might be some other factor along with the toxæmia as a causative agent of the condition, but he felt sure the toxæmia was always present As another proof that the condition was due to a general cause such as a toxæmia, he mentioned the fact that in all these severe cases there were large hæmatomata formed outside the uterus, and the condition must therefore be looked upon as general, and not as due to a merely local cause affecting the uterus alone These severe cases of accidental hæmorrhage formed one of the most serious groups met with in obstetrical practice, and no matter what was done there was a large mortality If the vagina was packed or the membranes ruptured and pituitrin or ergot administered a few of these cases failed to respond, and the patient died of hæmorrhage before the child was born, or, if the uterus was emptied, from post-partum hæmorrhage The cases referred to were very few, but he felt that when they were met with the best treatment was Cæsarean section followed by hysterectomy He himself had treated six such cases in a period of three years during the war, and had saved half of them, but it was evident that they were very uncommon from the fact that since that time he had not met a single case in which he felt called upon to do an abdominal section

Dr J E STACEY (Sheffield) gave figures on ante partum hæmorrhage, from which he concluded that in both accidental hæmorrhage and placenta prævia the cause was toxæmia —The PRESIDENT said that he thought that the treatment should be palliative in every case

Mr A. GOUGH showed a specimen of parasitic myoma removed from a patient aged 42 A pedunculated fibroid the size of a fœtal head had its vascular supply cut off by torsion of its narrow uterine pedicle, At the opposite pole it had adhered to a loop of small intestine, and there was a free supply of blood through the adhesions The tumour was easily separated and the patient did well

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MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A MEETING of this Society was held at Derby on Dec 14th, Mr FURNEAUX JORDAN (Birmingham), the President, in the chair

Dr C D LOCHRANE reported two cases of

Dystocia

CASE 1 —*The patient was an 8-para*, all her children had been full time and healthy, and she had had no miscarriages The case was seen in consultation on June 1st, 1925, when Dr Lochrane found that the head of the fœtus was born, but the trunk could not be delivered on account of a firm irregular mass obstructing the upper half of the pelvis Previously there had been a slight antepartum hæmorrhage, and although the pains had been strong, the head had only descended to its present position after the mass had been pushed aside

As moderate traction failed to bring about progress in delivery, the patient was deeply anæsthetised with chloroform and morphia, and after considerable difficulty the mass was pushed up and manipulated above the brim of the pelvis This allowed the shoulders and the remainder of a well-developed 10 lb fœtus to be delivered without great difficulty The fœtus showed no œdema or other external abnormality Half an hour later a huge, thick, solid placenta was delivered, it was not markedly œdematous, but weighed 3 lb 3 oz Microscopically the placental tissue was found to be unduly dense in consistence no spirochætes were found

Dr Lochrane said that he had never heard of another case of dystocia from this cause The clinical and pathological picture did not support the view that œdema from albuminuria was a predominating factor in the production of this huge organ, neither was there any suggestion of syphilis, although, unfortunately, blood had not been examined by the Wassermann reaction

CASE 2 —The patient, a primipara aged 23 was admitted to hospital on March 7th, *1926, with a history* of having been in labour 40 hours Her temperature was 98 6° F, her pulse-rate 86, and her general condition good The uterus was found to be unduly prominent and in state approximating to a tonic contraction, the presentation was by the breech, and the fœtal heart-rate was 111 The os was two fingers-breadth dilated and was displaced upwards A cystic mass, the size of a Jaffa orange and continuous with the uterus, occupied the pouch of Douglas The obstruction of labour was regarded as due either to a soft by suggesting a perspective and stimulating ideas It is attractively written and is embellished with five portraits illustrative of the argument

HYSTERIA

By ERNST KRETSCHMER, M D , Professor of Neurology and Psychiatry in Tubingen Authorised English translation by OSWALD H BOLTZ, M D , Senior Assistant Physician in the Manhattan State Hospital, New York City New York and Washington Nervous and Mental Disease Publishing Company 1926 Pp 120

THE approach to the problems of hysteria has within recent years been oriented almost entirely from the viewpoint that its phenomena represent a type of psychogenic reaction According to many this reaction is based on the existence of a prepared subsoil, latent in all, so that all are potential hysterics , others regard the hysterical syndrome as the expression of a certain purpose (half hidden or altogether concealed), a kind of " flight into sickness," of " gain through sickness " The aim of the author is to amalgamate these two seemingly divergent conceptions by endeavouring to show that the hysterical type of psychogenic reaction consists in the development of a tendency to dissimulation and in the use made by the latter of reflex, instinctive, or otherwise biologically preformed mechanisms This view is developed with ingenuity and plausibility, and is satisfying in the sense that it endeavours in some degree to account for the physiological peculiarities of the psychoneurosis, a feature of the condition which seems to impress neurologists more than psychologists No explanation can make any pretence to finality unless it takes these peculiarities into consideration Dr Kretschmer's monograph deserves to be studied by all who are interested in the problems of hysteria

LYMPHOCYTES

The Lymphocyte in Resistance to Tissue-Grafting Malignant Disease and Tuberculous Infection An Experimental Study By JAMES B MURPHY, M D New York Monographs of the Rockefeller Institute for Medical Research No 21 1926 Pp. 168 $2

DURING the past 14 years Dr Murphy and his collaborators have published a large number of papers—over 60, as he states in the introduction to this monograph—in which he has tried to establish by a great variety of experiments that the resistance of the organism to the growth of a malignant tumour resides in the lymphocytes According to him a diminution in the lymphocytes diminishes the resistance, while an increase raises the resistance, and this applies not only to the growth of transplanted tumours, but also to that of spontaneous tumours

The practical and theoretical importance of this contention is obvious Accordingly the earlier experiments of Dr Murphy, on which his conception was based, have been repeated by several observers (Stevenson, Sittenfield, Prime),[1] who completely failed to confirm his experimental observations In subsequent papers Dr Murphy has taken the unusual course of ignoring these criticisms and of putting forward new, though less conclusive, evidence in support of his contention In one of these experiments, which attracted some attention, he claimed to have shown that in a mouse an area of skin, if exposed to an erythema dose of X rays, became resistant to the inoculation of a transplantable tumour if the tumour was implanted *intracutaneously*, while *subcutaneous* transplantation under the same area resulted in the growth of a tumour Although the placing of a piece of tumour into the intracutaneous connective tissue of so delicate a structure as the skin of a mouse so as to avoid the subcutaneous connective tissue is a matter of great technical difficulty, no details were given to show how this could be accomplished A few low-power microphotographs would have furnished evidence in support of the author's contentions that he had succeeded in restricting the implant to the cutis, but the only figure published gives no indication of the site of the inoculation. In view of these doubts, Dr Murphy's work has not met with general acceptance and has not found the clinical application of which it is obviously capable

The present monograph is not a collection of reprints The author has taken his published observations and " brought them together in a logical fashion in the form of a general summary for the convenience of the reader " This has involved a rewriting of the whole matter The restatement of experimental results, the correctness of which has been questioned, without a reference to the published work of critics, is misleading to those readers who are not fully acquainted with the literature, while to those who are, it must deepen the doubts which they have entertained On the problem itself, whether the lymphocyte represents a mechanism of defence against the growth of cancer, the verdict must be, under the circumstances, " not proven "

HEART AFFECTIONS

Principles of Diagnosis and Treatment in Heart Affections Third edition By Sir JAMES MACKENZIE, M D , F R S , &c , St Andrew's Institute for Clinical Research , and JAMES ORR, M B , Ch B , Physician to the Institute London Humphrey Milford 1926 Pp 242 10s 6d.

THE third edition of the " Principles " is edited by Dr James Orr, who collaborated with Sir James Mackenzie in the previous edition Many sections have been rewritten, and much new matter added, in order to incorporate the more recent theories developed by the late author and his associates at the St Andrew's Institute for Clinical Research Whether the work has gained or lost in value by these changes, must remain a matter of opinion To simplify knowledge, by searching for fundamental principles, is admittedly the object of science, but such principles can only be evolved very gradually, and there is always a danger in attempting to apply them prematurely This danger is illustrated by the chapter on auricular flutter, where the generally accepted explanation of this condition—namely, circus movement—appears to be rejected by the author, not because the experimental evidence is unsound, but because such a hypothesis fails to conform with the " law " that activity of an organ depends on certain regulating structures Surely the " law " should be made to fit the facts, and not the facts the " law "

In previous editions of this book the subject matter consisted primarily of a simple record of careful clinical observations , it is probable that the reader who owing to limitations of time, is compelled to confine his attention to a small book on a large subject is in search of facts rather than theories But disciples of the late Sir James Mackenzie doubtless feel it to be a pious duty to act as guides to the path which their master was exploring at the time of his death, and practitioners who have derived practical help from previous editions may now be willing to take an excursion into more obscure realms

PEDIATRICS

Clinical Pediatrics Edited by R S HAYNES, M D , Clinical Professor of Diseases of Children, Columbia University, New York Vols I -V. London and New York D Appleton and Co. 1926 16s per volume

THE first five volumes of Prof Haynes's system of pediatrics give promise that the completed work will occupy a prominent position in medical literature The aim of the editor is to provide the practitioner with a series of readable monographs on the various phases of children's disease, presented, as far as possible, from the clinical standpoint, and with direct relation to treatment This aim has been most successfully carried out in the volumes which have so far appeared Vol I , by Dr R W Lobenstine and

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[1] Journal of Cancer Research, 1917, ii , 1920, v

Reviews and Notices of Books.

THÉRAPEUTIQUE CHIRURGICALE

By P LECÈNE, Professor of Surgery in the University of Paris; and R LERICHE, Professor of Surgery in the University of Strasbourg Vol I Pp 644 Vol II ,with the assistance of F. LEMAITRE Pp 507 Paris Masson et Cie 1926 10s each volume

THESE two volumes, together with the third, which has already been reviewed in these columns, provide a surgical treatise of original type The point of view of the authors is refreshingly new in a surgical work, in that they emphasise the essentially intellectual nature of a therapeutic decision To them, assuming a knowledge of pathology, an ability to formulate a correct diagnosis and the memory of past experience, the determination of the best course to pursue is an affair of the mind alone The book is built upon this supposition A disease is classified according to its therapeutic indications, the different methods of treatment which have been employed are described in principle, the published evidence in favour of one or the other brought forward and criticised in the light of the authors' wide experience, and recommendations are made This mental attitude towards surgical problems is not so prevalent as could be wished, though it is perhaps open to argument whether it is possible or even desirable for the operating surgeon to be so detached since on his mastery of certain details of technique may depend the decision as to the appropriate treatment in a given case Surgery is a handicraft and an art as well as a science However, such a scholarly exposition of the principles of surgical therapeutics as is outlined in this book is of value to any surgeon

Vol I on general surgery and that of the extremities is written solely by Leriche, who preserves an even balance in all his opinions Such questions as the advisability of operating in the presence of shock illustrate this very well He recommends operating to prevent shock before its onset, but never in its presence, unless it be to stanch a bleeding vessel or to repair a single injury of an extremity Transfusion of blood in shock he believes to be valueless The treatment of contaminated wounds is considered in a characteristically logical way He is against any operation in myositis ossificans, except in rare cases after a very long wait for resorption to occur In the section on nerve injuries much useful knowledge has been collected The insistence on the necessity in nerve suture of successive paring of the upper end, until healthy nerve fibrils are met, is sound advice Contrary to our experience, he believes autogenous nerve-grafts to be successful in 35 per cent of cases The treatment of that very troublesome condition causalgia, is, in succession, periarterial sympathectomy, resection of nerves and resection of the posterior roots In sarcoma of the bones X rays are said to be useful when the growth is of the round-celled type, useless when it is of the fusiform type, and in any case to have no effect upon the occurrence of metastases Much pleasure and profit are to be derived from this volume, even when, as in the copy sent for review, it is incorrectly made up, some of the section on the surgery of the upper extremity being missing

In Vol II Lecene writes about diseases of the head and neck, chest and breast, whilst Leriche deals with the spine and pelvis, and Lemaitre with oto-rhino-laryngology This volume is just as satisfactory as the first There is abundant evidence of extensive literary research and personal experience The chapter on the treatment of head injuries makes this difficult subject appear almost simple The value of lumbar puncture is insisted upon, but the accurate information afforded by a spinal manometer seems to have been overlooked In regard to tumours of the brain, the writer points out that the removable ones amount to less than one-third of the total, though he does not neglect to mention the work done by Cushing and by Dandy in the removal of gliomata On the question of exophthalmic goitre he adopts a very sane point of view He says in effect, that as yet there are no comparable series of operated and medically treated patients which can give us actual and reliable information as to the value of surgical treatment He believes it established that one-half the patients recover by medical measures alone, that surgery gives 40 per cent of cures (possibly more) expeditiously, and that sympathectomy is useless X rays being without risk, he recommends them for trial The discussion on cancer of the tongue is also of interest All methods are reviewed, and the opinion is expressed that treatment in the future may resolve itself into radium for the tongue and surgery for the neck He believes the improvement in results lies in the hands of the dentists, who see these lesions much earlier than the surgeons do

This treatise will be read with advantage by any active surgeon The wide experience of the authors coupled with extensive study and a logical exposition of the problems to be faced, with definite conclusions wherever knowledge is complete enough to warrant such judgments, render the book of unusual value There are no illustrations

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PERNICIOUS ANÆMIA

By F A EVANS M D London Bailliere, Tindall and Cox 1926 Pp 177 11s 6d

APART from statistics of the experience of pernicious anæmia at Johns Hopkins Hospital, there is not much in this book which will not be found in the larger systematic text-books Ætiology, symptoms and treatment are dealt with fairly fully, the anatomy and histology of the blood and organs quite summarily, there is no account of the metabolism of iron We should have welcomed also some more ample discussion of the nature and pathogenesis of the disease It is still unknown whether the changes in the red cells are the cause or the result of the excessive hæmolysis Dr Evans is impressed by the importance of cholesterin and its variations, facts which are in harmony with the view, suggested by the age-incidence, the inevitable fatality and the histological changes, that the disease is essentially a malignant tumour of red corpuscles However, the book is evidently meant less for the pathologist than for the clinician, who may find it useful

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TYPES OF MIND AND BODY

By E MILLER, M A Camb, M B, M R C S, D P M, Neurologist to the Ministry of Pensions, Clinical Psychologist to West End Hospital for Nervous Diseases London Kegan Paul, Trench, Trubner and Co Ltd 1926 Pp 132 2s 6d

Dr Miller, following Kretschmer, distinguishes two main types of bodily architecture, the "pyknic" (massive and compact) and the "asthenic" (lean and angular) On the psychological plane these types find their correlates, respectively, in the "cyclothymic" and the "schizothymic," the essential difference here being in respect of emotional orientation This appears to resemble closely the extro-introvert classification of Jung, and the distinction is an important one for psychopathology, though of limited usefulness as a type formula when applied to more or less normal individuals Space is found in this small book for a useful account of the results of recent research on the endocrine glands and their neural connexions The author holds that this "endocrinic-vegetative" system provides a medium for the interaction of psychical processes and bodily structure, and suggests that constitutional idiosyncrasy of this part of the organism may be the foundation-stone of type

No reader could expect to find a complete guide to the diversity of human personality in a small volume such as this, but Dr Miller's book will repay perusal

THE LANCET.

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NEUROLOGICAL SURGERY

formation and inauguration of a Society of Neurological Surgeons is a sign of the times rely limited in numbers as the exponents of rticular branch of surgery must be, if only e in comparison with other surgical conditions clinical material is somewhat restricted, they ute nevertheless a professional coterie of some ance and importance, and are animated, we el sure, with a spirit of scientific hopefulness ARLES BALLANCE has been elected the first nt of the Society, which has honoured itself ring as honorary members SIR DAVID FERRIER, DWARD SHARPEY-SCHAFER, SIR CHARLES INGTON, SIR ARTHUR KEITH, and Prof G SMITH America has already forestalled this ting development by the founding of a Society ro-Surgeons (it is matter for minor congratula- iat our British colleagues have avoided the n of this needlessly contracted neologism for wn description), and, as is known, there have various countries and at various times promi- ponents of the surgery of the nervous system, s, indeed, in what has now come to take a ed place among the specialties These, r, as is also known, were not infrequently ed by circumstances to "play a lone hand," r names and memories, which in some instances ne readily to the mind are all that remain, potent to inspire their successors, now usefully ed in a company of experts whose future ions will be followed with interest and instruc- iot a few in the more general ranks of surgery ent, comparatively speaking, has been the tion of attack on conditions of the nervous amenable to surgical intervention, that the of some still fortunately with us covers ly the whole period within which such efforts ne *to be regarded as definitely* comprisable ope of surgical procedure It is true, no doubt, more obvious pathological states of depressed racture, rupture of meningeal vessels, and so re handled by "surgeons" as early as medical begins and that for less certainly diagnosed is resort was made to trepanning by members oth with and without any pretence to civilisa- imes long past, as well as in the darker corners eth to-day, but there can equally be *no* doubt era of promise in respect of scientific neuro- urgery was entered on only *when the* experi- showed the way by his investigations into physiology of the lower animals, and when rches of the neuro anatomist finally elucidated ate structure of the neuraxis and its append- ius it is natural and just that the honorary of the new Society should consist of very hed anatomists and physiologists, not only the cardinal rôle they have played in render- le the appearance of the Society in the time but also because their nominal associa- it will prove a constant reminder to its mbers of the fundamental basis of all successful surgery—viz, knowledge of the anatomy and physiology of the mechanisms with which they deal Some may suppose the day will pass when the neurological surgeon will be content to have his clinical diagnoses made for him by neurological physicians, with one or two notable exceptions, such has been the relationship more or less tacitly acquiesced in by those who have regarded themselves as competent to operate in nervous cases Yet under a considerable variety of circumstances collaboration of physician and surgeon still remains desirable if not always essential, and in respect of the nervous system accuracy in topographical diagnosis is an indispensable preliminary to surgical success Hence the surgeon either ought himself to have had a training in neurology or should be prepared to utilise the aid which the neurologist can give him Be this as it may, it is unquestionably for the ultimate benefit of mankind that surgery should persistently insinuate itself into a region which has been explored in little more than its confines The spectre of ' inaccessibility " has often handicapped well-intentioned if less well-directed efforts, but with slow and steady steps the range of feasible interference is being extended Of no less importance is operative security for the patient, and if for some cerebral operations mortality percentages are still high, surgery is but experiencing in this field the hard schooling it has had in others ere increase of knowledge has widened the margins of safety A further equally important aspect of neurological surgery concerns the attainment of adequate degrees of functional recovery after operation Herein, we believe, would lie one of the major advantages to be expected at the surgeon's hands, if only the possibility could be relied on with some little confidence, but too often have technical surgical successes been unaccompanied by functional restitution, largely owing to the peculiar compactness of the structures forming the nervous system, whose physiological value is out of all proportion to their mass Delicacy of touch and nicety of manipulation are here as requisite and will repay the surgeon's skill as greatly as in the case of the eye or the ear To conserve function is an aim no less worthy of his concentrated effort than to remove the results of disease

A wide field lies open before this new Society for theoretical and practical study We felicitate its members on their realisation of the advantages of corporate existence, and believe its installation will usher in a period of enhanced knowledge of the functions of the nervous system and of ever more successful treatment of the serious diseased states with which it is the province of the surgeon to deal

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THE ALLEGED INCREASE OF CANCER

IN all European countries except one the recorded mortality from cancer has shown a rapid increase during the last 40 years The one exception is Switzerland, which by 1880 had the highest death-rate from cancer of all European countries, and has maintained this high rate during the present century without showing any marked increase In the meantime the increase in some of the other European countries has been so great that England and Wales, for instance, which in 1881 had only half the crude death-rate from cancer of Switzerland, now equals it The same holds good for Sweden and Holland, while the death-rate for the urban population in Denmark, which by the end of last century equalled that of Switzerland, now exceeds it It is generally

Dr H C Bailey, is entitled Prenatal Care, but also includes many problems of abnormal labour and a discussion of breast-feeding Perhaps its most useful feature is the detailed account which it gives of the ideal régime during pregnancy The medical complications of pregnancy, particularly cardiac disease, are well described, and an excellent chapter on syphilis is included The illustrations, though not original, are well chosen This volume by itself should have a large field of utility, as well as forming an attractive unit of the series Vols II and III, by Prof Clifford Grulee and Dr Barnet Bonar, are devoted to the new-born In Vol II the physiology of the infant is discussed in considerable detail, and anthropometric statistics and the principal factors in growth and development are presented in an unusually readable form An extremely interesting chapter on the circulatory system sets out the characteristics of the infant's blood and also those of heart muscle as shown by electrocardiogram Asphyxia, icterus, and hæmorrhagic disorders are considered in relation to physiology and treatment Vol III. is written from the clinical standpoint, and contains an admirable description of the diseases and malformations met with in the new-born A large amount of recent work has been included and is rendered accessible to the reader by a comprehensive bibliography The authors' presentation of the much-disputed questions of cerebral lesions is one of the best in the literature, the different possibilities in the ætiology are set out extremely fairly, while in general they accept the conclusions of O H Schwartz, and regard the majority of cerebral lesions as traumatic The account of the diagnosis and treatment of these lesions is eminently practical; the difficulties of diagnosis, and the disappointing results of lumbar puncture, diagnostic or therapeutic, are clearly indicated, and a strictly conservative line of treatment is advocated In Vol IV, on Preventive Pediatrics, Prof. Borden Veeder deals with problems of heredity, diet, and management in infancy and childhood in a lucid and convincing manner His methods of infant feeding have the great advantage of being simple and practicable He has little sympathy with complicated formula-feeding, which he considers to have diverted attention from the importance of breast-feeding, as well as being unnecessary and pseudo-scientific Clear instructions are laid down for the composition of simple modifications of milk, and are followed by full diet tables for older children Vol. V, by Dr Bronson Crothers, on Disorders of the Nervous System in Childhood, is the least comprehensive, though by no means the least interesting of the series The author has expressly declined to give an exhaustive account of nervous syndromes, and has limited himself in general to the consideration of two points whether the disease is inevitably progressive or can be arrested, and whether the residual condition can be improved by re-education As a manual of treatment we have nothing but praise for this volume It has the advantage of being written in a spirit of optimism, and of regarding nervous disorder from a dynamic point of view, entirely free from all distinctions of "functional and organic" On the side of diagnosis the book is necessarily incomplete, and in this respect the reader will perhaps experience some of the disappointment which the author foreshadows in his prefatory remarks

These volumes are attractive in appearance, of convenient size, and well illustrated By way of comment and not of criticism, it may be noted that the distribution of space is not very even, while all the volumes fulfil the object for which they were written, some of them go decidedly beyond it The two volumes on the new-born constitute a most exhaustive account of the subject, comprehensive enough for any book of reference, on the other hand, in Vol V., on Diseases of the Nervous System, the author has confined himself largely to matter bearing directly on effective treatment A certain amount of overlapping is inevitable in a series of this kind, cerebral birth-trauma, for instance, is dealt with by different authors in Vols I, III and V, and breast-feeding in Vols I and II The publication of further units in the series will be awaited with interest by readers on both sides of the Atlantic.

Diseases of Infancy and Childhood Ninth edition By L EMMETT HOLT, M D, and JOHN HOWLAND, M D D Appleton and Co 1926 Pp 1018 35s

THE appearance of the ninth edition of this well-known text-book brings with it a reminder of the great losses which American pediatrics has suffered in the last few years Prof Holt, the original author, died in 1924, two years after the publication of the eighth edition Prof Howland, who had undertaken the greater part of the revision of the recent editions, died last June In a preface by Dr E A Park we read that he lived to complete the writing of this volume, though not to see its publication The ninth edition retains very completely the form of its predecessors, there are numerous small additions throughout the text, but on the whole there are few important alterations The account of the treatment of diarrhœa in infants has undergone some modification, the use of protein milk is adopted as the method of choice A fuller description is given of the pathology of nephritis, particularly the acute forms Recent work on tetany and some other nervous disorders has been included A new section has been written on erythrœdema, the author maintains a sceptical attitude towards much of the pathological work which has been published on this subject, and does not accept any nervous lesion as essential The older parts of this book are too well known to require comment The new edition has brought them thoroughly up to date, and will fully maintain the reputation of the work, and perpetuate the memory of two of the most eminent members of the American school of pediatrics.

ROUND THE WORLD WITH A DICTAPHONE By *A Record of Men and Movements in 1926* SIR HENRY LUNN, M A., M D, B Ch London Ernest Benn, Ltd 1927 Pp 301 10s 6d

SIR Henry Lunn's journey was made for the purpose of promoting friendship among the English-speaking peoples and of bringing the Churches into closer union But on this journey he took with him the eyes and the outlook of a man with a sound medical qualification who began life as a missionary, and the book is full of keen observations and amusing stories, many of them told against the author, as when he reached an American town which was placarded in large capitals with "British Peer gives millions for Peace," and when, in commenting on the immense importation of motor-cars into New Zealand, he said he supposed the Maoris did not drive in cars, only to learn that the Maori will sell everything he has to possess a motor-car In various parts of the world he came across old medical acquaintances, as, for example, Prof F Wood-Jones in connexion with ethnological and blood-group studies at Hawaii, and the tragedy of Tasmania, where the last native died 40 years ago without any record having been taken of the folklore or of the habits of an interesting people In New Zealand also he rediscovered an old friend, who proved to be the only commissioned officer in the R A M C who ever rose from the ranks He notes the absence of racial prejudice in New Zealand and the award to a Chinese boy of a Navy League prize, the fact that protective duties result in Australian butter being sold in London at 4d a pound less than its price in the Commonwealth, and the tremendous vogue which the totalisator is having in the same country The volume is well illustrated, and gives a clear picture of impressions gained in many countries by one who disarms the critical reader by his generous enthusiasms The title of the book bears witness to the fact that the chapters were dictated to an instrument while the scenes were still fresh in the author's mind have affected the facilities for hospital treatment Lastly, during the last 12 years or so the American Society for the Control of Cancer has carried out an intensive campaign with the object of educating the public to seek medical advice at the earliest possible stage of cancer The society claims that this campaign has been successful and that a much greater number of patients now present themselves with the disease in an operable stage All these conditions are very different from those obtaining in the limited community of the city of Frankfurt, which formed the material of the investigations of King and Newsholme and of Willcox We are not prepared to assert that these various factors are responsible for the whole of the increase in the death-rate from cancer of the breast and of the female genital organs recorded in the American statistics It is sufficient to realise that this may be the case and that there is no method of evaluating these factors Since the choice between the two alternative explanations is therefore quite arbitrary, the American statistics do not enable us to decide whether the recorded increase is apparent or real An investigation on the cancer death-rate in a limited community with a highly efficient medical service and a stable population is more likely to yield instructive results Such an investigation was actually carried out some years ago by Dr W T Howard[2] for the city of Baltimore Dr Howard found no increase in the mortality from cancer of the breast and cancer of the female genital organs, but actually a reduction Dr Schereschewski, who quotes Dr Howard's investigation, states, however, that in a personal communication Dr Howard informed him that the calculations upon which these conclusions were based are erroneous Dr Schereschewski states further that, on the contrary, the figures furnished by the Bureau of the Census show a distinct increase But the actual figures are not given by Dr Schereschewski, and it is not even stated whether the increase refers to the crude mortality-rate or to the corrected rate It seems highly desirable that the corrected figures for Dr Howard's calculations should be published, for they would furnish a good test for the validity of Dr Schereschewski's assumption on which his conclusions rest If it be true that throughout the whole ten registration States the diagnosis and death certification for cancer of the accessible sites has remained uniformly accurate during the period 1900–20, then the increase in the mortality from cancer of the breast and female genital organs in Baltimore should be of the same high order as that recorded for the ten registration States If the figures are found to be distinctly lower for Baltimore, Dr Schereschewski's assumption would be shown to be unfounded and the problem would require further analysis

Our point is not to deny a real increase in the death-rate from cancer, but rather to plead for a recognition of the strength of the arguments against this view If the statistics of large communities give prima facie evidence of a real increase in cancer, as is the case not only for the United States but also for England and Wales, as shown in the Registrar-General's Report for 1917, why is this increase not revealed by statistics of small communities such as Frankfurt, Baltimore, and Switzerland, in which the conditions for accurate registration are highly efficient and which should give, therefore the most accurate reflection of this increase? Until this discrepancy is accounted for satisfactorily the contention that the increase in cancer is real remains unproven

FAT AND TUBERCLE

Long ago Hughes Bennett suggested that the main causes of tuberculosis were the dearness of butter and the abundance of pastry-cooks, the poor, he said, do not get sufficient fat, and the upper classes disorder their digestion by puff-paste The part played by fats in the household of the body, although not as yet fully determined, is unquestionably very large and the shortage of fat during and after the war brought this home to many who had previously been sceptical on the point Shortly before the armistice Prof E H Starling was requested by the Scientific Food Commission to set out the evidence, as it then existed, for the indispensability of fat He was unable to find good evidence for a strict lower limit of necessity provided that the caloric value of the diet as a whole was sufficient to meet the needs of the body but he pointed out that the breast-fed infant's diet owes 50 per cent of its total energy value to fat, and that up to the age of 6 years a percentage of 35, and thereafter of 20–25, should be regarded as the minimum desirable. These proportions can be augmented without interfering with efficiency or with health, and, Prof. Starling thought, diminished without serious detriment to health, though probably not without inconvenience and diminution of efficiency He had not before him then the evidence which we now have of the great increase of tuberculosis in countries where the fat ration was most restricted And at that time not much attention had been paid to the distribution of the accessory factors in animal and vegetable fat, although Prof J C Drummond had expressed a desire to enforce the addition to margarine of a proportion of cow butter, egg yolk, or oleo-oil to provide an adequate source of the fat-soluble factor. Evidence which has since accumulated in Central Europe points to the importance of this element of the diet in raising the resistance to infection from tuberculosis More than that, part of the accepted treatment of a case of pulmonary tuberculosis is "feeding up," in which process fat undoubtedly plays an important part, and where there is risk of infection the common sense prophylactic measures include a satisfactory diet, rich in fat As a contribution to this subject, a small but intensive study by Dr W B Vaile, appearing on p 72 of our present issue, will certainly be read with interest Dr Vaile investigated in all 24 families consisting of 162 persons, he went carefully into all the possible factors and was struck with the varying tendencies exhibited by different members of the families towards fat It was possible, he found, to separate two distinct groups of "fat-eaters" and "fat-shy" individuals, and when these groups were investigated with regard to pulmonary tuberculosis the results were remarkable. Of the 101 fat-eaters, 96 were alive and well, 4 certainly had pulmonary tuberculosis, and 1 doubtfully so. There were 61 "fat-shy" persons, of whom only 11 were alive and well, 48 certainly had tuberculosis, all pulmonary except 2, in which the localisation was hip and ankle respectively, and the remaining 2 had doubtful tuberculosis To complete the story, there were also 2 persons alive and well about whose food habits no information could be obtained

The examples given in Dr Vaile's paper illustrate these results, although they give little indication of their correct explanation The statistical investigation of pulmonary tuberculosis is notoriously fraught with difficulties Even the well-known and much-quoted results obtained by Karl Pearson as to the inheritance of a tuberculous diathesis have been criticised in the light of evidence agreed—except by uncritical or uninformed writers—that a large proportion of this increase is apparent and not real This is due to a variety of factors inherent in the pathology of cancer Cancer is a disease of middle age and of old age, and since more persons now reach the cancer age owing to more successful treatment of other diseases and the absence of epidemics, this in itself is bound to increase the "crude mortality-rate" from cancer This fallacy can be corrected by appropriate calculations Another disturbing factor is the difficulty of diagnosing cancer, owing to the absence of specific symptoms A large number of cases of cancer are therefore not diagnosed as such during life, and in the absence of a post-mortem examination are recorded under another cause of death than cancer The number of such cases gradually diminishes as our knowledge of the disease increases and as new methods of clinical examination, such as the cystoscope, the sigmoidoscope, and X rays are being introduced and becoming more universal in their application But an examination of hospital post-mortem records has shown that even under the most favourable conditions the number of cases of cancer which die without the disease being recognised amounts to no less than about 25 per cent Another factor which has not received sufficient consideration is the greater frequency with which cancer is now being diagnosed in its earlier stages and the resultant greater frequency of operative treatment When the disease is diagnosed in its earlier stages the patient and the patient s relatives are necessarily acquainted with the nature of the disease in order to justify the necessity for an operation After the operation the diagnosis is confirmed by microscopic examination The diagnosis of malignancy is thus "fixed" for this particular case, and if the patient dies within five years after the operation the case will be returned as cancer whether a post-mortem examination is made or not But if the diagnosis is made late when the case is inoperable, the nature of the disease may be kept from the patient and even from the patient s relatives, and as the diagnosis has not the same certainty the medical man in attendance may prefer to return the case as other than cancer It is surely more than a coincidence that there is one country in which the medical man in attendance gives two certificates of death, one to the family as a prerequisite to burial and another one as a confidential report of the cause of death to the Statistical Bureau, and that in this country—Switzerland—the recorded mortality from cancer has always been high and has shown no increase for the last 25 years

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[2] Jour Amer Med Assoc, 1923, lxxx

It was a great advance in our understanding of the significance of cancer statistics when G KING and A NEWSHOLME in 1893 pointed out that errors in diagnosis must necessarily affect more the death rate from cancer of inaccessible sites, such as stomach and intestine, than of accessible sites, such as the breast and female genital organs They analysed accordingly the death-rate from cancer of these two groups in a restricted community with a highly efficient medical service—the city of Frankfurt—where records for the death rate from cancer of different sites were available They found that the increases in the cancer mortality during the period of 1860–87 fell entirely on the inaccessible sites, and a continuation of their studies by W E WILLCOX showed exactly the same relationship for the succeeding period up to 1913 The mortality returns for cancer of the accessible sites showed therefore during the whole of the period the same degree of reliability, and the fact that the increase in the total cancer death-rate fell entirely on the inaccessible sites was accepted as evidence that this increase was an apparent one due to improved diagnosis, and not a real one That is a reasonable argument But it is an obvious logical fallacy to invert this sequence by arguing that an increase in the death-rate from cancer of the accessible sites necessarily represents a real increase Such an increase might also quite well be due to such factors as more accurate diagnosis or more frequent operative treatment This is the fallacy underlying the argument in a recent official publication issued by the United States Public Health Service and entitled "The Course of Cancer Mortality in the Ten Original Registration States for the Twenty one-year Period, 1900–1920"[1] This Bulletin contains in an appendix 114 tables giving the death rates from cancer in the ten registration States arranged for the different age groups and according to the different sites In the text, which has been written by Dr G W SCHERESCHEWSKI, this statistical material is very clearly analysed and corrections are made for those various errors which can be evaluated statistically After having made all those deductions the figures show a considerable increase in the total death rate from cancer during the period 1900–20, and this increase is due not only to cancer of inaccessible sites, but also to an increase in cancer of the accessible sites At this point Dr SCHERESCHEWSKI makes a bold assumption He holds that the accuracy of diagnosis has remained the same for the whole of the period On this point he writes (p 51) "While there is still much room for improvement in diagnostic skill leading to early diagnosis of the disease, when cancer of even inaccessible sites has progressed to a stage where death is imminent, in a great majority of instances the symptoms at that time are so characteristic and pronounced that no difficulty should be experienced, even by the medical tyro, in determining the cause of death From the standpoint of professional skill permitting the recognition of cancer in the agonal stages, it does not seem probable that the physicians of 1900 were much, if at all, inferior to their brethren of to-day" On a previous page (p 47) he speaks of "cancers of accessible sites as the buccal cavity, breast, female genital organs, and the skin in which errors, *so far as death certification is concerned* (the italics are ours), hardly ever occur"

Starting from these premises Dr SCHERESCHEWSKI is enabled to conclude from the statistics that the increase in the death-rate from cancer of the accessible sites is real and not apparent, and that the contrary view is no longer tenable But the assumption of the accuracy of death certification and of diagnosis which he makes is not supported by any evidence, statistical or otherwise It is merely an assertion, and if anyone chooses to disagree with it the whole conclusion falls to the ground It would, in fact, be easy to make out a good case against Dr SCHERESCHEWSKI S assertion The statistics refer to a vast district, as extensive as the whole of Western Europe, in which an enormously rapid development has taken place during the period of observation The population has increased from 20 millions to 27 millions, means of communication have greatly improved, there has been an enormous advance in medical education all over the United States and especially in the ten registration States, so that to day many look to the States as a model of progressive medicine This change must necessarily weeks. This restores the blood-sugar to normal, gives the patient an adequate carbohydrate diet and repairs his nutrition as far as possible. Dr. Nixon is vehement in his condemnation of under-nutrition in the treatment of diabetes and quotes Mosenthal's dictum that, whereas insulin diminishes the blood-sugar and sets aside glycosuria by allowing the body to utilise more glucose, starvation allows the accumulated glucose to escape in the urine. Starvation is floating a stranded ship by jettisoning her cargo while insulin treatment takes her off on a rising tide. Insulin allows of the storage of glycogen that is so important after operation; under-nutrition depletes the store. Apart from these risks there is a peculiar danger for diabetics in anæsthesia. All anæsthetics produce a rise in blood-sugar, chloroform being the worst: local infiltration may cause extensive necrosis and spinal anæsthesia may produce coma. Pre-operative starvation by itself may result in post-operative acetonæmia and acidosis, even in a non-diabetic, and for the diabetic no form of anæsthesia is safe until he has assimilated an adequate amount of carbohydrate. It is sugar that protects him from infection, shock, and coma, and insulin raises the blockade and allows the blood-sugar to come to the relief of the beleaguered tissues. Post-operative shock always brings an interference with the internal respiration, to which the effect of a general anæsthetic may be chiefly ascribed, and which causes, according to Dr. D. Fisher,[2] internal acidosis and asphyxia, with lessened oxidation within the cell. By improving the oxidation it is possible to hasten recovery from shock, and Dr. Fisher has devised a form of treatment on these lines. The diabetic patient has these oxidative processes already impaired when he comes to operation, and is therefore predisposed to post-operative shock. The first reaction of the organism to shock is to mobilise all the available glycogen in the blood stream and distribute it to the cells, but since this supply is soon exhausted it is most important that it should be quickly replenished. Insulin, which enables glucose to be administered in an oxidisable form, is rational treatment for shock in diabetics and non-diabetics alike.

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[1] Public Health Bulletin, No 155, Washington Government Printing Office, 1925

EARLY LEPROSY IN THE CHILDREN OF LEPERS.

THOUGH leprosy has been known throughout the ages, it remains one of the most puzzling diseases and there is still uncertainty about some of its most important features. The literature, for example, is still cumbered with innumerable estimates of the incubation period ranging from a few months to 30 years, whilst the initial lesion, method of invasion, and portal of entry are all still in doubt. This unsatisfactory state of affairs is due to the long incubation period and slow development of the disease, to the failure of attempts to transmit the infection to lower animals, and to the difficulty of gathering observations of the early symptoms in a number of cases large enough to permit of definite conclusions being drawn. Dr. José N. Rodriguez[3] has taken the opportunity to study the early manifestations of the disease in children, some of whom became lepers, and all of whom had lived with leprous parents—most of them continuously since birth. Of 398 children of leprous parents, 59 (14.8 per cent.) were bacteriologically positive; 11 (2.8 per cent.) were clinically lepers but bacteriologically negative; 97 (24.4 per cent.) had suspicious signs; 231 (58 per cent.) were non-leprous. The sexes were almost evenly represented. The incidence of leprosy was practically identical in both sexes up to the eighth year, but from 8 to 12 there were twice as many males as females. The influence of puberty, naturally more pronounced in girls, is perhaps manifested in the fact that from 12 to 16 years of age the incidence among females rose to exceed the figure for males by 10 per cent. Incidence increased with age—i.e., with longer exposure to leprous parents. The youngest leper bacteriologically positive was a girl 18 months old, in whom the first lesion (macular) had been noted at the age of 8 months. Half the confirmed lepers became bacteriologically positive between the ages of 3 and 6 years, the average age being 5 years and 9 months. In view of the frequent finding of lepra bacilli in the blood of lepers the possibility of transmission during pregnancy from the maternal to the fœtal circulation was investigated. Sugai and Monobe (1913) found lepra bacilli in four of 12 placentas of leper mothers and lepra cells in 6 others, and also demonstrated the bacilli in 10 of 12 newly born babies and in blood of a 17 months old child of a leper mother. D. San Juan (1919) found acid-fast bacilli in globi form in placentas of lepers. In the examination of 15 placentas Dr. Rodriguez found four in which there were lepra bacilli in the cord at the fœtal end, twice in globi form. In only one of these were bacilli found also in the placental tissue. It is evident, therefore, that the bacilli reach the fœtus through the placental circulation in a considerable proportion of cases. This is apt to occur when the pregnant mother develops the so-called lepra fever, with its accompanying bacteræmia. Thus of 19 children of mothers having lepra fever during pregnancy, 3 became lepers; while only 5 children became lepers out of 100 whose mothers did not have lepra fever in pregnancy. Congenital manifestations of leprosy are unquestionably rare; no case was found in the 871 children born at Culion up to 1924, the earliest suspicious lesion being seen at the age of 3 months. Hereditary transmission of a predisposition to leprosy is difficult to prove, and if it exists plays only a minor rôle in the spread of the disease. In the parents at Culion leprosy did not give rise per se to an increased incidence of congenital debility in the offspring.

Treatment with chaulmoogra oil derivatives was given to 184 leprous mothers before and during pregnancy, whilst 58 had no treatment; but in both groups half the offspring became lepers. Breast-feeding was not an important factor in the transmission of leprosy from mother to child. Sugai and Monobe (1916) had discovered lepra bacilli in the milk of leper mothers in two cases, but in not one of 45 cases examined at Culion could they be found. Most of the women with infiltrated nipples were sterile, and indeed, involvement of nipples was more often noted in males than in females. In fact, leprosy at Culion was twice as common in bottle-fed as in breast-fed children; as a rule the latter were in better condition, which shows that the better the health of the child the less its chance of acquiring leprosy when exposed to infection. Although in some cases the itch of scabies undoubtedly served as the portal of entry in leper children, scabies and other skin diseases did not in general predispose to infection with leprosy, and the higher incidence of leprosy was actually found among children who had had no skin disease. Since the leper parents, especially the mothers, are in more intimate contact with their children than is any other person, they are chiefly responsible for infecting their own offspring. Fewer children become infected when the type of leprosy in the parents is neural than when it is the more contagious cutaneous or mixed type. Many authorities contend that there is no initial primary lesion—that the invading lepra bacilli produce no appreciable lesion at the point of entrance: they believe that, once having gained a foothold in the body, the bacilli may remain latent for varying lengths of time, after which if conditions become propitious, they may multiply to produce manifest leprosy. In favour of this view is the observation of Sorel and Leboeuf that acid-fast bacilli may exist in the lymph glands of apparently normal individuals who have lived with lepers. In the Culion children, however, Dr. Rodriguez found in 75 per cent. of those who became definitely lepers a single initial lesion in the skin and he marshals data in support obtained, particularly in France, by the removal of children from a source of infection early in life, who then grow up with actually less "tendency" to tuberculosis than the population at large The explanation of this, and possibly other difficulties, lies in an appreciation of the fact, insisted upon again largely by the modern French school, that it is infection in the very earliest months of life which counts, and that pulmonary tuberculosis in later life represents a reactivation of an old process or a superimposed reinfection If this is so, it may be that the relationship between fat in the diet and pulmonary tuberculosis is to be explained by supposing that the absence of desire for fat is one of the general symptoms of latent tuberculous infection The child with the "habitus phthisicus," who is probably already infected, may dislike fat just as the child who suffers from cyclical vomiting often shows a marked liking for fat, or as the pregnant woman affects curious articles of diet, the like or dislike being possibly associated with biochemical conditions On the other hand, it may really be, as Dr VAILE suggests that the people who eat fat escape the development of infection because their resistance is higher than that of the "fat-shy" group How resistance is raised by the intake of fat is, again, a matter for speculation The good results of cod liver oil in pulmonary tuberculosis may throw some light on this, for the antirachitic vitamin is apparently concerned with the process of calcification, and the ultimate cure of pulmonary tuberculosis is generally associated with the laying down of lime salts in the healing lesion Incidentally, it would be interesting to learn if the dislike for cod-liver oil, present in certain people, is more frequent in those with tuberculosis, as would seem likely from Dr VAILE's results He submits some evidence that fat taken under compulsion is as effective in preventing tuberculosis as fat taken with avidity although many physicians agree with LAUDER BRUNTON that the instinct of some children who refuse to eat fat is perfectly right Fat is undoubtedly a costly item in the daily dietary, but it will be an added reason for encouraging its use if Dr VAILE's results can be confirmed on a large scale

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[2] Surg. Gynec., and Obst., 1926, xliii, 224.

[3] Studies on Early Leprosy in Children of Lepers, Culion Leper Colony, Philippine Health Service, The Philippine Journal of Science, vol. xxxi, No. 2.

TUBERCULOSIS SOCIETY —A meeting of this society will be held on Friday, Jan 11th, at 1, Wimpole-street, London, W, at 8 P M, when Dr C D Agassiz will read a paper on the Differential Diagnosis of Non-Tuberculous Fibrosis of the Lungs A discussion will follow

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —On Jan 27th the lectures on Emergencies in Medicine and Surgery will be continued at 5 P M, at the rooms of the Medical Society of London, Dr L S Burrell will lecture on Hæmoptysis, the lecture being free to members of the medical profession The clinical demonstrations in surgery and ophthalmology will also be resumed during the month Courses in January, which have already been announced, are Jan 10th to 22nd, Medicine, Surgery, and the Specialties, at the Prince of Wales's General Hospital, Jan 10th to 22nd, Diseases of Children, at the Children's Clinic and the Royal Free Hospital, Jan 11th to Feb 5th, by-weekly lecture-demonstrations, at the Bethlem Royal Hospital, and Jan 17th to 29th, Cardiology, at the National Hospital for Diseases of the Heart From Jan 31st to Feb 26th the London Lock Hospital will hold a comprehensive course in Venereal Diseases A special course in dermatology will be given at St John's Hospital from Jan 31st for four weeks Classes in pathology can also be arranged From Feb 7th to 19th there will be an all-day course in Diseases of Children held at the Paddington Green and the Victoria Hospitals For one week, starting on Feb 21st, a general practitioners' course will be given at the Royal Northern Hospital, no fee will be charged Syllabuses of the special courses and copies of the general course programme and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship, at 1, Wimpole street, London, W 1

Annotations.

"Ne quid nimis"

NEW YEAR HONOURS

THE list of Honours published on Jan 1st, which was a small one, recognises the work of medical men in various parts of the Empire Neurologists everywhere will rejoice at the knighthood conferred on Dr Henry Head, F R S, whose work has cleared up dark places in the structure and function of the nervous system for his own and future generations Dr Thomas Houston, who also receives a knighthood, has filled many positions in Queen's University, Belfast, and made his influence felt in public affairs Colonel Corrie Hudson, C I E, D S O, who has been awarded the C.B, Military Division, is Assistant Director of Medical Services at Aden, and Lieut-Colonel John Wolfran Cornwall, I M S retd, who has been made C I E., directed until recently the Southern India Pasteur Institute In offering hearty congratulation on behalf of the medical profession to colleagues who have received well-deserved honours, we extend our good wishes to the Rev Edwin William Edward Lant superintendent of the Leper Home and Hospital at Dichpalli, Hyderabad, and to Miss Rose Harvey, superintendent of the Nasik Leper Asylum, Bombay, who have received the Kaisar-i-Hind medal of the first class, as well as to two other women whose appointment as C B E follows on distinguished work in preventive medicine—Mrs Grace Thyrza Kimmins, founder of the Heritage Craft School for Crippled Children, and Miss Katherine Jane Stephenson, vice-chairman of the Wilts Public Health Committee

INSULIN IN SURGERY

THE diabetic patient has always been a severe trial to the surgeon High sugar-content in the blood renders a person very susceptible to local infection, and diabetics require surgical treatment of boils, dental abscesses, pyelitis, appendicitis, and pelvic and other suppurations more often than do non-diabetics But, in the words of Sir Frederick Treves, "Diabetes offers a serious bar to any kind of operation A wound in a diabetic patient will probably not heal, while the tissues appear to offer the most favourable soil for the development of putrefactive and pyogenic bacteria" The preparation of insulin has, therefore, been as great a blessing to the surgeon as it has to the physician, and Prof J A Nixon has recently described its surgical employment in a paper read before the Bath and Bristol Branch of the British Medical Association[1] Dr Nixon does not agree that once a patient starts taking insulin he must continue throughout life Many patients of local infections are undiscovered diabetics or potential diabetics Their carbohydrate tolerance is low but sufficient to deal with an adequate diet When they contract an infection their tolerance is lowered, with the result that they can no longer metabolise sufficient carbohydrate, and their resistance to infection is dangerously decreased The surgeon should not hesitate to use insulin here When the patient has successfully overcome the infection, his carbohydrate tolerance may rise again and the insulin can be discontinued To impose a strict dietary is highly dangerous, for the diabetic with an infection needs more carbohydrate, not less The only way to enable him to utilise it is to give insulin in proportion to his carbohydrate demand In true diabetic gangrene insulin treatment should never be delayed, even if it does not cure the gangrene, it will add considerably to the chances of success in operation, which without it will probably fail A deliberate operation, for whatever cause and of whatever magnitude, should always, in Dr Nixon's opinion, be preceded by a course of insulin lasting two or three palatability on which the bulk of money is thrown away A number of prescribers are not content to add a simple syrup to a mixture but require this syrup to be flavoured with virginian prune or tolu and frequently to be conveyed in a vehicle of chloroform water The addition of chloroform water to a prescription containing syrup of squills adds 1½*d* to its cost, and to make up a mixture containing compound tincture of cardamoms with peppermint water costs 5*d* more than plain water In a few instances the flavouring agent of a prescription has cost more than the active drug, as in a mixture containing 3 drachms of iron and ammonium citrate made up with orange water, where the salt cost 1½*d* and the solvent 6*d* Various devices have been adopted in the local formularies, framed by certain panel committees or groups of committees, to get over the excessive price of such vehicles as chloroform and peppermint water In these all B P aquæ are prohibited and concentrated solutions used instead, chloroform is dispensed in the form of an emulsion The tariff for all these drugs is based on B P or B P C standards and is, of course, part of the contract made with the pharmacists under the Insurance Acts Separation of the prescribing and dispensing for insured persons was no doubt a wise move, but it was at the same time costly, and it is significant that the cost of drugs prescribed is actually less than the dispensing charge in many insurance areas The Dundee Panel Committee calls the attention of practitioners to the fact that the great demands on the Drug Fund make it imperative to take every care to avoid unnecessary and wasteful expenditure The abolition of the placebo would be a great step in this direction, but one which would require the assent of the insured population, and the bottle-of-medicine habit dies hard In one respect the year 1926 has shown a welcome standardisation in Dundee where the practice of prescribing a 6-ounce mixture in dessert-spoon doses has become practically universal The report contains much food for thought

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[1] Bristol Medico Chirurgical Journal, Winter 1926, p 199

THE SUPRARENAL AND THYROID GLANDS IN PELLAGRA

Dr H M Shelley's observations on pellagra in Nyasaland, which we publish on p 74, point to changes in the thyroid gland, with deficiency of thyroid secretion, as the essential lesion in the disease As a control, it is of interest to note the results of an experimental investigation of pellagra by Dr L Karczag In a first series of experiments his maize-fed guinea-pigs developed loss of hair, gastro-intestinal catarrh, and paralysis, partial or complete, of hind legs These symptoms, however, were found also in guinea-pigs infected with tubercle He had concluded that there was no identity between the acute maize disease of guinea-pigs and the chronic human disease, pellagra In later researches,[1] however, undertaken with Dr Irene Barát in Budapest, he has been able to demonstrate in maize-fed guinea-pigs, besides a characteristic herpes of lips and nose, definite capillary and parenchymatous changes in the suprarenal glands and red blood-cell destruction and deposition of free iron pigment in suprarenals, liver, and spleen These lesions occurred equally whether the maize-fed guinea-pigs were white or piebald, or were kept in daylight or in the dark He notes that in human pellagra Kozowsky had found deposition of free iron pigment in suprarenals, liver, heart muscle, central nervous system, and peripheral nerves, and declared these changes to be especially characteristic of pellagra There is also a rather close resemblance in many features between pellagra and Addison's disease Karczag concludes that essentially pellagra is a lesion of the chromaffin system, involving the sympathetic nervous system and the endocrine glands It will be seen that this is not inconsistent with, but rather in support of Shelley's contention There remains the all-important question of ætiology Karczag's animals were maize-fed, but Shelley's observations exculpate maize as a factor in the production of pellagra in Nyasaland

THE CURE OF WHOOPING-COUGH

INNUMERABLE claims have been made for the cure of whooping-cough, but the methods suggested have always proved to have at best only a limited value Recent articles from different sources recommend two kinds of treatment which are of interest because neither requires the use of drugs and both are based ultimately on the hypothesis that imperfect oxygenation is the cause of the attacks and the disease will end within 21 days if this deficiency is remedied Dr E Pietranera[1] working on lines suggested by Fretin,[2] of Paris, advocates periodical movements of the chest, they may be active or passive according to the age of the patient The movements are designed to stimulate deep breathing and are repeated every two or three hours In infants they consist of alternate light compression and relaxation of the lower ribs, as in artificial respiration, whilst older children are taught breathing exercises Nageli's method, which consists of applying pressure to the base of the tongue from outside, may be used to cut short the spasmodic attacks, or else the method of Josè Panna, who advocates deep pressure on the epigastrium, rapidly applied and kept up till the attack ceases Dr G Boeldieu[3] claims good results in the treatment of whooping-cough by the means originally described by H Chatiniere in 1921 Subcutaneous injections of nascent oxygen are given every two days, the quantity being at first 50 c cm and later, if necessary, 100 c cm Of 18 cases so treated he reports that in 16 the attack ended in 15 days, whilst the other two were cured within three weeks These results are very similar to those which Dr Pietranera got by making the children breathe deeply He, too, treated only 18 cases, but all of them successfully Like other writers, he lays special stress on the value of open air and recommends treatment at home where possible, because there is a strong nervous element in the disease and children may involuntarily imitate the attacks of others Of the two methods his is certainly to be preferred as it is simple, needs no apparatus, does not cause pain—an important point with small children—and can be carried out by the older children themselves, in any case deep breathing is probably beneficial to the organism Treatment by injection of oxygen might, however, be tried in bad cases where the means are at hand and where manipulative treatment is undesirable.

INDUSTRIAL ALCOHOL AS A BEVERAGE

DEATH is a drastic punishment for secret drinking Reports from the New York correspondents of the daily newspapers gravely state that in 1926 about 2000 people died in the United States as a result of drinking so-called whisky prepared from denatured alcohol Public opinion is now aroused in that country, and apparently there is some likelihood of the industrial alcohol sold there being rendered for the future merely nasty and not deadly Denatured alcohol, or methylated spirit as it is usually called here, was introduced in 1853 in response to a widespread demand for cheap alcohol for industrial purposes, the great cost of alcohol being then, as now, due rather to taxation than the expense of production It consists of ethyl alcohol rendered unfit for drinking by the admixture of about 10 per cent of wood naphtha or crude methyl alcohol Towards the end of the late war a violet colouring matter was also added and " ordinary " methylated spirit, as distinguished from the better kind known as " industrial," contains enough mineral naphtha, or light paraffin oil, to make it cloudy when mixed with water Methylated spirit as thus composed is of his belief that this was the primary initial lesion. In the other 25 per cent the first clinical manifestations were multiple macules appearing simultaneously or a generalised rash The commonest sites of the initial lesion were the buttocks, the cheeks, the posterior and lateral surfaces of the thighs, and the loins The primary lesion was never seen on chest or abdomen, although these regions often showed lesions in the more advanced stages of leprosy The initial lesion was a solitary pale or pinkish macule, and in three cases this primary macule started from a scabies scar

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[1] Wiener klinische Wochenschrift, 1926, No 50, p 1449.

[1] Semana Medica, Nov 11th, 1926

[2] Revue de Kinésie, 1902

[3] Paris Médical, Nov 27th, 1926

Rogers and Muir calculated incubation period by supposing susceptibility to be equal throughout the whole time of exposure, taking half of this period as the average time of infection, they added the time which had elapsed between isolation and the appearance of the first sign of the disease Using this method, Dr Rodriguez calculates that the probable average incubation period among the segregated and unsegregated Culion children is three years and nine months The period of observation of children of lepers segregated after 6 months of age should cover at least five years, for one child developed the first suspicious signs four years and two months after isolation Segregation of the children of lepers delayed *after* the age of 6 months did not decrease the incidence of leprosy, nor did it delay the appearance of the disease The removal of children of lepers from a leprous milieu immediately after birth is the only safe prophylactic measure The experience of the Almona Settlement in India during 30 years, and of the Molokai Settlement in Hawaii during 15 years, has made it certain that such a measure is effective In both these leper settlements but one child so removed has become a leper Dr Rodriguez and the Philippine Health Service are to be congratulated on a valuable contribution to our knowledge of leprosy

RESEARCH IN ANIMAL BREEDING

THE Animal Breeding Research Department of the University of Edinburgh has gained an international reputation, and the sixth annual report of its director makes interesting reading, both because it deals with varied investigations and because it describes extraordinarily rapid progress Although projected as long ago as 1913, the department did not get seriously to work until 1921 Even then it was in very humble circumstances, but it was under the directorship of Dr F. A E Crew, and within these few years the importance of its labours has so impressed the scientific world that the Rockefeller International Education Board offered £30,000 for its development on condition that an equal sum was raised from other sources [1] The present report contains, by way of postscript, the intimation of a gift of £10,000 from Lord Woolavington The sphere of work is likely to be enlarged and its educational value increased, and already a number of foreign research workers have been attracted to the school Much of what is done has an almost immediate application to practical agriculture, but the temptation to be merely utilitarian has been eschewed To quote the director "The suggestion that if such and such problems were solved vast sums of money would be saved may be of profound economic interest to the economist and the statesman ; it will certainly interest the scientist as a citizen, but it does not constitute the kind of stimulus that provokes him to ardent investigation" Such problems, however, as fertility and fecundity in sheep and studies in the fleece qualities of various breeds and crosses have a great academic interest as well as an obvious economic application The same holds good of a series of studies in sterility in the horse—studies which suggest that the mode of inheritance of a certain form of sterility is comparatively straightforward In pigs these problems are being investigated from a different aspect—namely, the breeding of a more prolific stock During the course of the year several papers have been published on endocrinology, with special reference to the sexual glands, and Dr Crew has two interesting contributions on the subject of rejuvenation He has shown that in the fowl unilateral vasoligation does not cause rejuvenation in the senile male—a result which gives no support to the claims of those who recommend the operation for the restoration of mammalian youth On the other hand, he finds that the feeding of desiccated thyroid to aged fowls of both sexes has definite rejuvenating effects, such as the resumption of egg laying by the females These are only examples of the interesting information contained in the director's statement, and we note that reprints of published papers will be sent to any person interested The unassuming format of the present report is becoming to an institute which is urgently in need of funds

PYORRHŒA ALVEOLARIS

THE treatment of pyorrhœa alveolaris, with which Mr G B Pritchard deals under another heading in our present issue, must wait on diagnosis, a truism which only needs emphasis because it is so liable to be overlooked in this condition The diagnosis of pyorrhœa depends on the recognition of periodontal pockets around the necks of the teeth produced by a process of ulceration occurring in the periodontal membrane The differential diagnosis lies between it and gingivitis, and all gradations are found between a simple superficial gingivitis and an advanced pyorrhœa existing either separately or together and running either an acute or chronic course The symptoms are often identical—i e , hæmorrhage from the gums—either spontaneously or after brushing They both may produce a purulent discharge from the gum margin, and both are most important causes of oral sepsis Clinically the manifestations of a gingivitis are superficial, of pyorrhœa deep as well as superficial. An acute gingivitis may produce considerable sloughing of the gingival margin and superficial parts of the adjoining gum, but the alveolar gum cannot be separated to any extent from the necks of the teeth A chronic gingivitis may produce considerable hypertrophy of the gum margin which may ulcerate freely, but the pockets associated with it do not descend below the necks of the teeth An acute pyorrhœa alveolaris may produce paradental abscesses, but although deep-seated they are lateral to the roots and not apical A chronic pyorrhœa of any length of standing destroys the normal festoon of gum at the necks of the teeth, and produces varying amounts of gum recession, and further still the membrane deep to the receded gum margin is destroyed leaving the pockets between the root and the alveolus, which are diagnostic whether or not there is visible pus Radiographically, the marginal absorptions of alveolus is little or absent in gingivitis while in pyorrhœa a varying amount of absorption is always visible with destruction of the superficial compact bone

THE COST OF DRUGS IN PANEL PRACTICE

THERE seem to be careless prescribers in Scotland as well as in other parts of Great Britain The epithet is that of the Dundee Panel Committee which returns in its report for 1926 to the expense to the Drug Fund involved in careless prescribing It might be more accurate as well as more courteous to use the term elaborate prescribers to indicate those who regard the taste and colour of a mixture as of equal importance with its active ingredients Leaving out of account modern organic preparations with a few exceptions, such as potassium iodide, the commoner pharmacopœial drugs which are well proved in private and hospital practice are inexpensive while it is the newer forms of medication whose value may be in doubt which are costly A consideration of prices, the report remarks, would almost lead one to conclude that the cost of a drug is inversely proportional to its therapeutic value But it is mere within limits there is no objective optimum and that only extremely violent changes in the stimulus can produce any significant variation in the reaction—are found in other psycho-physiological fields For example, it is no longer believed that there is one objectively best way of performing a manual operation in a given industrial process " Anyone who studies his report will agree with Mr Pyke that the problem is complex and elusive, and many questions have been raised which have not been answered The practical typographical problems of legibility are still far from scientific solution, and such solution will not be possible until many problems of principle, method, and technique have themselves been solved Further investigation is now to proceed as a part of a broader study of the physiology of vision and will have the goodwill of all save the cynic who thinks that what is really needed in this world is some means of making print illegible

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[1] THE LANCET, 1926, ii , 341

FORMS OF MALARIAL PARASITE

THOUGH many morphological variations of the malaria germs are recognised it is now generally admitted that only three definite species exist as parasites of man throughout the world Neither the views of Laveran on the unity of the genus plasmodium nor the plurality of the subtertian parasite, *Plasmodium falciparum*, as advanced by Grassi and Feletti, have gained general acceptance The publication in 1914 by J W W Stephens of a new species of malaria parasite under the name of *Plasmodium tenue* occasioned considerable comment amongst malariologists The main claims to distinction on the part of this new parasite were the marked amœboid forms, the large size of the nuclear chromatin, and the irregularity in shape of the schizonts A Balfour and C M Wenyon pointed out at the time that such distorted forms were not uncommon in *falciparum* infections, and on these grounds were unable to recognise *tenue* as a distinct species Now, in the October issue of that progressive periodical the *Kenya Medical Journal*, J C J Callanan has been able to show, by means of three excellent plates of camera lucida drawings, that *tenue* forms of the parasite can be demonstrated in the same preparations as ordinary " ring-forms " of the subtertian parasite, and that the former are found only in distorted red blood corpuscles which have been subjected to pressure, none being demonstrable in those portions of the blood slide where the cells are superimposed That *tenue* forms are indeed artefacts is conclusively proved by their absence from fresh preparations of subtertian malaria blood In *tenue* cases which came to autopsy preparations from the brain and spleen invariably showed parasites identical with *falciparum* In blood films in which too great pressure has been exerted in their preparation the majority of the *tenue* forms lie in one general direction, at right angles to the edge of the film The question of the existence of a fourth form of malarial parasite seems thus to have been definitely settled

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DR J M T FINNEY, of Johns Hopkins Hospital, Baltimore, will deliver the Hunterian Lecture to the Hunterian Society at the Mansion House, London, on Monday, Jan 17th, at 9 P M. The title of his address will be the Influence of John Hunter on American Surgery

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THE King has approved the appointment of Dr Munro Kerr, professor of obstetrics and gynæcology in the University of Glasgow, to be Regius Professor of Midwifery in the University, in place of Prof Murdoch Cameron, whose resignation took effect from Dec 31st, 1926

WEST KENT MEDICO-CHIRURGICAL SOCIETY —A clinical meeting of this society will be held at the Miller General Hospital Greenwich, S E , on Friday, Jan 14th, at 8 45 P M , when Mr H Davies, Mr C A Joll, and Mr P Bernard Roth will show cases

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Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCV —THE TREATMENT OF PYORRHŒA ALVEOLARIS

THE methods employed in the treatment of pyorrhœa are so various and differ so much in accordance with the local and general conditions associated with it, that it is difficult to indicate any one that is definite and sharply defined

Advanced Cases

In the advanced case with a large amount of destruction of the supporting tissues of the teeth, with marked oral sepsis definitely established, and possibly with manifestations of focal infection in other parts of the body, it is impossible to produce any but a slight improvement of the local condition by conservative treatment Radical extraction of the teeth is the only method which offers any hope of a cure, and even then a low grade infection of the alveolus may persist for years and give rise to a progressive absorption of what bone is left Locally the jaws remain tender and artificial dentures are badly tolerated Radiographs show a " feathered " appearance at the margins of the jaws and from these " feathered " patches micro-organisms can be cultivated Curetting followed by vaccine treatment seems to offer the best method of control

Early Cases

In the early case where the peridental infection is confined to the gingival margin, or has spread only to the superficial fibres of the periodontal membrane, conservative treatment offers very fair prospects of success In the great majority of cases pyorrhœa starts as a localised gingivitis and some time usually elapses before it can spread any distance Injury, the result either of food stagnation or of mechanical trauma, closely followed by infection, is the main cause of these localised patches, and they are often seen round the lower third molars as they are erupting, especially when the eruption is delayed by impaction or limitation of space In such cases pressure can be transmitted as far forwards as the canine teeth, resulting in a mechanical congestion of all the gingival margins and so predisposing them to the infection which follows Crowding and misplacement of other teeth have a similar effect Mechanical congestion of the gums associated with food impaction is always followed by a gingivitis Seruminal calculus is then deposited, and acts as an additional irritant, thus a vicious circle is set up and pyorrhœa becomes established Treatment lies in the removal of the cause of the congestion and the making of the mouth and teeth self-cleansing

Sometimes the relief of pressure by extraction of the third molars is sufficient, in any case this procedure makes the cleaning of the back of the mouth a comparatively simple matter For relief of congestion elsewhere, orthodontic treatment, either mechanical or preferably, and if possible, extractive, is employed; as the position of the teeth in the arches improves natural cleansing also improves, stagnation of débris disappears, and, congestion being relieved, the deposition of seruminal calculus is checked To complete the treatment and generally before the extraction, or during the orthodontic treatment, the calculus and all débris is removed by scaling and polishing An astringent application such as glycerine and tannin is used for a few days, together with a mouth-wash containing chlorate of potash In most cases no further treatment is required except a periodical scaling ; in all the patient must be taught the necessity of thorough artificial cleaning

Artificial Cleaning

The technique for the patient is simple, but it must be carried out with the greatest thoroughness unattractive to most drinkers and is definitely harmful because the methyl alcohol it contains may cause blindness and even death, thus the use of methylated spirit in pharmacy is wisely limited by law, even for external applications There can be no doubt that from the points of view of revenue and the protection of the weaker brethren the introduction of methylated spirit has been a great success in Great Britain, though most laboratory workers and industrialists would welcome a supply of cheap ethyl alcohol which had not been denatured It is worthy of note that in this country where wines and spirits are fairly easily obtainable a highly poisonous industrial alcohol would therefore be drunk only by accident, and the Inland Revenue authorities have not seen fit to use anything more deadly than a small amount of wood naphtha and paraffin A complete denatured alcohol may also contain pyridine bases, pine oil, aniline oil, nitrobenzene, and orthonitrotoluene, whilst specially denatured alcohol may contain brucine salts when it is used for perfumes and toilet preparations In the United States the Commissioner of Internal Revenue insists that “every package of completely denatured alcohol containing less than 5 wine gallons” must bear under the skull and crossbones the following statement “Completely denatured alcohol is a violent poison It cannot be applied externally to human or animal tissues without serious injurious results It cannot be taken internally without inducing blindness and general physical decay, ultimately resulting in death” This terrifying statement might conceivably be regarded by some people as merely a rather lurid edition of the orthodox teetotal description of ordinary alcohol It appears that the liquids actually drunk in America are concoctions containing this denatured spirit—but not bearing this label Thus it is arguable that the Federal Government is to some extent responsible for accidents arising from the bootlegger's activities, because it insists that industrial alcohol shall be very poisonous but fails to prevent it from being disguised as whisky On the other hand, the Government may very well reply that any citizen drinks whisky at his own risk seeing that the taking of alcoholic liquor is against the law The risk of being poisoned in the United States, even by whisky which claims British origin, is so considerable that it must keep a large proportion of the population in the narrow path of abstinence Nevertheless, as we have already remarked, death is a drastic punishment for secret drinking

GASTRIC SECRETION IN GRAVES'S DISEASE

THE importance of the sympathetic in the pathogeny of Graves's disease is well recognised In our present issue we publish an article by Dr Henry Moll and Dr R A M Scott incorporating the results of their observations on the secretion of the stomach in this disease In 50 cases of hyperthyroidism, of which 34 were frankly Graves's disease, they found 22 cases of complete achlorhydria and 15 of marked hypochlorhydria, the deficient secretion being found almost entirely amongst those with true Graves's disease They found further that in such cases the rate of gastric emptying was exceedingly rapid, so rapid indeed, that very little was to be found in the stomach at the end of a quarter of an hour Discussing the causation of these findings the authors state that three possible explanations present themselves: First there is the possibility that a gastritis is the cause of the deficient secretion, but this is ruled out by the absence of any excess of mucus Next they discuss regurgitation of duodenal contents, chloride estimations give some support to this hypothesis, but only in a few cases, and it may be pointed out that complete achlorhydria from such a cause has never been observed, it being very doubtful if any reflux of alkali could keep the secretion of a normal stomach permanently neutralised Finally, they discuss the importance of inhibition of secretion by the sympathetic This seems to be the probable explanation R Gaultier has satisfactorily demonstrated the excessive secretion resulting from section of the splanchnic nerve; Izod Bennett and J F Venables have shown the inhibitory effect of emotions such as fear and nausea in man, and there is in general a mass of evidence pointing to the antagonistic effects on gastric secretion of the vagus and sympathetic nerves The interesting observations of Moll and Scott provide new evidence of sympathetic action

THE LEGIBILITY OF PRINT

THE printed word has only one function—to be legible Designers of type cannot be acquitted of a bias towards ornament or at least towards æsthetic arrangement, and the evolution of printing has not been governed wholly by the principle that the most useful shall survive It is not impossible, therefore that certain forms of type now in frequent use are ill-suited to their purpose and by their illegibility place an unnecessary strain on the eyes of countless readers In 1923 the Medical Research Council appointed a committee to organise and direct research into the legibility of printed matter, the committee consisted of Sir John Parsons, F R S, Mr F C Bartlett, Dr H Hartridge, F R S, Mr L A Legros, Mr D R Wilson, and Mr E Schuster, D Sc Their scheme of investigation was entrusted to Mr R L Pyke, who has been carrying out work in Mr Bartlett's laboratory at Cambridge and has written a report[1] which has now been issued by the Council At first sight the problem seems to present few difficulties but Mr Pyke's excellent review of previous work shows at once that it is exceedingly complex The first stumbling-block is the definition of legibility, which few investigators have attempted, some have ignored the fact that legibility refers to the act of reading performed under normal conditions Properly speaking a legible type is one that can be read easily under these conditions, but, as Mr. Pyke says “does ‘easily’ mean accurately, or rapidly, or both? or does it mean with little effort, and if so, does that mean without eye-strain or without fatigue (both the latter involve some reference to an extended duration in time, accuracy and rapidity do not)?” This suggestion of difficulty in definition is, perhaps, enough to give an indication of the many different criteria which investigators may consciously or unconsciously adopt These criteria may be objective, subjective, or functional, and in studying legibility in the light of subjective and functional tests the psychological and physiological variations of the human subject are a source of error which is exceedingly hard to eliminate It would be impossible to give a brief and accurate description of the problems which arose during Mr Pyke's investigation and of the means which he used to solve them, it is enough to say that they are admirably set out in his report Experiment was made with a series of eight types and the conclusion was reached that one of these (Lanston standard old style) was probably the most legible, whilst another (Lanston modern condensed) was probably the least But the reservation is made that these conclusions were true in the laboratory only, and Mr Pyke is very doubtful whether the relative legibility would hold in the ordinary world He puts forward the hypothesis, not unacceptable to the uninformed intelligence, that extremely large typographical differences must be present before it is possible to say that there is any difference in the objective legibility of types “Of types more slightly differentiated,” he remarks, “it is impossible to say that one is objectively more legible than another Such types will be ‘legible’ according as they suit the psychological make-up of the reader Hence, the most legible type, in this subjective sense, is unlikely to be the same for all readers These two ideas—that

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[1] The Legibility of Print By R L Pyke, M A, Medical Research Council, Special Report No 110 London H M Stationery Office Pp 123 4s

Special Articles.

A REVIEW OF RECENT WORK ON MEASLES *

By J E. McCartney, M D D Sc Edin.
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The recent decision of the Metropolitan Asylums Board to allot more beds in its infectious hospitals to measles has focused attention on the high death-rate for which this disease and its complications are responsible Work has been actively progressing in attempts to protect contacts against the infection and also to try and ascertain the causal agent of disease It is therefore opportune to review the recent work on measles to ascertain how far we have progressed in the fight against this important and serious menace It is not possible or profitable to refer to all the published work on measles that has recently appeared neither in the time at my disposal am I able to discuss fully all the points that I shall raise I give, therefore, the main facts and conclusions as they appeal to me particularly from the laboratory standpoint, knowing full well that they will not be universally accepted

The beneficial results that have been reported from the use of human convalescent serum and the announcement from the continent that an animal serum can be prepared which acts similarly have raised hopes that there is now some means of preventing an outbreak of measles in schools and other institutions The search for the ætiological agent of the disease has been vigorously carried out in recent years and three independent groups of observers have put forward claims for as many types of organisms each of which has been thought to be the causal agent of measles I shall endeavour as far as possible to assess the various claims that have been made and the conclusions reached and shall refer only to the important papers.

It will be convenient to review the recent work on measles under three headings. (1) The use of human convalescent serum; (2) the use of animal serum (Degkwitz) · (3) the various organisms claimed to be the causal agent of measles · (a) Caronia's organism, (b) Tunnicliff s diplococcus: (c) Ferry and Fisher s streptococcus

The Use of Human Convalescent Serum

Nicolle and Conseil [1] in 1918 first published results on the injection of serum from convalescents to immunise children who had been in contact with the disease Park and Zingher [2] in 1916 injected 41 children recently exposed to measles

Since that time numerous observers—Richardson and Connor [3] Degkwitz [4] Zimmermann [5] Blackfan and colleagues [6] Zingher [7] Debré and Ravina [8] Davis [9] Brügger [10] Weaver and Crooks [11] Park and Freeman [12] Haas and Blum [13]—have published results and all agree as to the efficacy of human convalescent serum if taken during convalescence and injected in adequate amounts shortly after exposure to infection By this means an epidemic may be cut short at once Other observers as suggested by Debre and Ravina,[8] use the serum to modify the disease to a very mild form, thereby inducing an active immunity

In the United States Park and Zingher [2] [7] have contributed greatly to our knowledge while on the continent Degkwitz [4] in Munich has recorded the results obtained in more than 1000 cases in 1921 and 1922

The numerous observations reported may briefly be summarised as follows —

> Six c cm of serum for children under 3 years of age and 6 to 10 c cm for children over 3 years are sufficient to protect from measles if injected within five days of exposure
>
> Inoculation on the seventh day is uncertain and on the eighth day does not usually protect at all, although if the disease does appear it is in a very mild form and complications are not likely to occur

The prompt use of the serum will prevent an outbreak from spreading and thus obviate the cases of broncho-pneumonia which have such a distressing mortality.

The immunity conferred by the serum is, of course only passive and lasts from two to four weeks After that time the child becomes susceptible again to the disease The blood should be drawn from convalescents shortly after the temperature returns to normal. 7 to 11 days being advocated by some observers Antibodies are still abundant in the blood three months after convalescence but they are considerably reduced in amount The serum can be stored in the cold for many months without losing its potency.

The method advocated by Park [12] for obtaining blood is as follows

> Adults preferably are used The blood is taken from the arm vein and run into a 500 c cm bottle containing 20 c cm. of 25 per cent sodium citrate and 0 3 g (equals a final dilution of 1 in 1500) of oxyquinolin sulphate (chinosol) as a preservative The red cells are allowed to settle by gravity in the ice box or are thrown down by centrifuging, and the supernatant plasma is pipetted off and put up in 3 c cm. and 6 c.cm. ampoules and in 30 c cm. bottles
>
> Blood for the *Wassermann test* is taken at the time of bleeding and a sterility control made of the plasma at the time of bottling A positive Wassermann reaction or contamination of the plasma results in the rejection of the sample

Modinos [14] of Alexandria in view of the difficulty of obtaining blood from small children, advocates the use of a blistering agent, and can obtain 20 c cm of serum from blister fluids. He states that children are less liable to be suffering from syphilis or tuberculosis than adults and that he has never known malarial parasites to be present in the fluid

The value of convalescent serum has been definitely proved Given in adequate doses and shortly after exposure to infection it will prevent the onset of the disease and is of immense value in stopping an outbreak, particularly where a large number of susceptible individuals are congregated together as in schools and orphan asylums Even if the serum is given in smaller doses or at a later date after exposure to infection the disease is greatly modified and is mild in character The rise of temperature is very slight, rarely to 100° or 101° F. Koplik spots are few or even absent, the coryza is slight, and the rash less severe There is practically no danger of complications and the recovery is certain and rapid The immunity from such an attack is active and lasting [15]

Cowley,[16] in an outbreak in an institution did not have enough convalescent serum to prevent the disease from spreading but allowed the epidemic to run its course treating each case of the disease when it occurred with serum from a convalescent 3 c cm were ordinarily administered and 5 c cm if the case was severe The disease was considerably modified, the temperature being quickly lowered, and there were no serious complications

Serum taken three to four months after convalescence has an effect in modifying the disease while blood from adults who have had measles in infancy, though not preventing infection will to some extent render the disease less severe One of the problems in the use of measles convalescent serum is the difficulty of obtaining a continuous supply of blood sufficient to meet the demands of large cities and institutions The serum can be taken in practicable amounts only from adults and the number of these taking the disease is comparatively small and not all are willing to have blood removed This difficulty will always remain, and in Budapest the mayor of the city has appealed to adult convalescents to give a suitable amount of blood Another objection raised has been the

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* Based on a paper read before the Society of Medical Officers of Health (Fever Group) on Oct. 22nd, 1926

A small tooth-brush—soft at first later medium hard, but never very hard—with discrete tufts of bristles set in serrated rows is used to carry the paste as far as possible on wall surfaces of the teeth, then a piece of dental floss silk or 3-ply worsted is taken and passed through the interdental spaces to clean them with the paste and remove all foreign matter This done, the teeth are finally vigorously brushed Twice a day, before retiring and after breakfast, is usually sufficient, but after every meal is ideal A mouth-wash before breakfast is usually sufficient It is of little use to employ an elaborate toilet immediately before a meal An ideal mouth-wash that can be used indefinitely is one containing carbolic acid 1 per cent and chlorate of potash 5 to 10 gr to the fluid ounce It is also advantageous to massage the gum gently with a soft brush wet with weak salt solution The paste or powder should consist of precipitated chalk containing 10 to 10 gr to the ounce of powdered soap and chlorate of potash

Mouth wash		Tooth-powder	
Ac carbolici	ʒii	Pot chlor	gr xv
Pot chlor	ʒi	Sap dur	gr xxv
Glycerini	ʒi	Ol cinnamon	♏v
Aq ad	℥viii	Cretæ precip	℥i

M for use dilute 1 in 5

Misplacement of the third molars, upper and lower, and general crowding of the cheek teeth are the most important predisposing causes of pyorrhœa starting at the back of the mouth Mouth-breathing, and the crowding and misplacement of the anterior teeth associated with it, or arising independently, strongly predispose to pyorrhœa in the front of the mouth A most intractable gingivitis—usually hypertrophic—arises and speedily develops into pyorrhœa unless the mouth-breathing is stopped and the crowding and associated traumatic occlusion relieved

Intermediate Cases

It is with the intermediate cases of pyorrhœa that the greatest difficulties arise Two methods of treatment are adopted which vary in accordance with the general condition of the patient In those in which the disease can be considered a purely local one less drastic measures are employed than in those showing evidence of secondary infection In the first place there is usually a gingivitis sometimes running an acute course, but more commonly a chronic one, which may be (*a*) atrophic, producing marginal recession, (*b*) ulcerative, due to local irritation by seruminal calculus, or (*c*) hypertrophic, resulting in fibrous overgrowth of the gingival margin and interdental pupillæ This last type is very common and produces large superficial stagnation areas as the redundant tissue encroaches over the enamel In other cases, apart from a chronic œdema of the whole of the gum, there is no apparent gingivitis, but the pockets around the roots are deep and exude pus freely

The first step to take is to clean the mouth thoroughly There is usually food débris in the stagnation areas, and on the teeth themselves is a soft deposit of oral débris and accumulated secretions, and on the necks a ring of seruminal calculus Thorough scaling and polishing with the use of floss silk and an atomiser spray in the interdental spaces completes the first stage of the treatment, which is accompanied by a stricter oral toilet on the part of the patient and the use of a mouth-wash The next step is to remove certain teeth which cannot be made self-cleaning or even be adequately cleaned by artificial measures, the third molars are the ones most often concerned Of the remaining molars those in which the membrane has been destroyed to or beyond the bifurcation of the roots should be removed Radiographs of such cases always show the bony septum between the roots rarefied or completely absorbed at its tip, and such an area always forms a septic focus which cannot be obliterated Of the remaining teeth, again, those in which the pockets extend over one-third of the root, or those that are definitely loose should be removed This alone, accompanied by improved hygienic methods on the part of the patient, produces a very considerable improvement in the condition of the remaining teeth

The complete removal of all deposits at the necks and on the roots of the teeth exposed in the pockets checks suppuration Washing of the pockets, together with astringent massage of the gum, removes secretions, and by promoting a more normal blood flow relieves congestion Thus the depth of the pockets is reduced by shrinkage of the gum around them In this way the purulent discharge may be completely stopped and the gum tightened to such an extent around the necks of the teeth that ingress of foreign material is prevented The pockets do remain, however, although considerably less deep, and are certain to become reinfected sooner or later It is usual for a general deterioration to take place in the space of a few months and a complete relapse is only a matter of time if treatment is not repeated at very frequent intervals

Gingivectomy—A much more lasting result may be obtained by performing the operation of gingivectomy on teeth selected for retention, especially where a hypertrophic gingivitis is present After the teeth and gum margins have been thoroughly cleaned and the chronic stagnation relieved by massage and irrigation, the redundant gum is cut back to the necks, or beyond if the pockets go so far, under novocaine and adrenalin anæsthesia, given by local infiltration Healing soon occurs and if the parts are kept clean recurrences are not common, ordinary methods of cleaning being sufficient to prevent further stagnation Gingivectomy can also be performed where there is no marginal hypertrophy and where the pockets are entirely confined to the roots Radiographs should always be taken The most promising cases are those in which there is a sharply defined margin to the absorbed alveolus Under local novocaine and adrenalin infiltration a horizontal incision is made through the gums on the buccal aspect down to the cementum at the level of the absorbed alveolus to meet a similar incision on the internal aspect The loosened gum is then removed and the raw surfaces kept constantly washed until they heal In this way the pockets are obliterated, much larger spaces are left between individual teeth, and natural cleansing is thus promoted If kept perfectly clean by gentle swabbing with wool soaked in 5 vols peroxide of hydrogen and the daily use of the atomiser spray, the cut surfaces are readily covered by epithelium without the formation of any redundant tissue The main disadvantages are the somewhat unsightly appearance of the elongated teeth, and in some cases, the extreme irritability of the tooth pulp due to abnormal stimulation through the exposed cementum

Ionic medication should be employed in all cases, whether or not gingivectomy has been performed The use of a variety of astringent solutions in this way materially lessens congestion, checks abnormal secretion, and generally gives tone to the tissues, besides relieving the associated discomfort

Autogenous vaccines can be used with advantage when associated with energetic local treatment, but they are valueless without it In acute cases especially the results of local treatment are seen much more quickly than in those in which they are not employed The possibilities of general infection are rendered more remote and cured cases do not tend to relapse so readily

G B PRITCHARD, M R C S Eng, L D S,
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PERTH ROYAL INFIRMARY MATERNITY UNIT—One of the first separate maternity wards to be erected in connexion with a hospital in Scotland is approaching completion at this institution It is the gift of Lord Forteviot, and contains 22 beds and the usual accessories

ENLARGEMENT OF GLASGOW HOSPITALS—It is hoped shortly to open a new wing of the Victoria Infirmary, consisting of 5 extra wards containing 105 beds and 15 cots The institution will then accommodate 380 patients, and the scheme includes two new operating theatres and an extension of the nurses' home The Royal Samaritan Hospital for Women is also being enlarged, and when the work is finished in March the number of beds will be increased from 90 to 160 Here, also, there will be two new operating theatres and an extension of the nurses' home The two enlargements will cost about £180,000 regarded as pathological I was unable to confirm any of Caronia's claims

Selma Meyer,[25] in attempting to repeat Caronia's work found the small bodies in uninoculated media and in cultures from chicken-pox, polyarthritis and normal blood Rabbits injected with uninoculated culture media showed bodies in the liver and spleen similar to those described by Caronia as being specific for scarlet fever and measles in animals The complement fixation reaction with the "cultures" and rabbit and human sera was not specific.

Meyer[26] injected 13 children with measles "cultures" prepared by Caronia, and also with a vaccine prepared by herself in exactly the same way as Caronia's material. The children were exposed to measles at periods of two to 15 days after the last injection All the children took the disease and the symptoms were equally typical and no less severe than in uninoculated children Regarding Caronia's claims to produce measles in children with his cultures, Meyer asked Sindoni (Caronia's assistant and co-author of several papers on measles) to inoculate two children with Caronia's own cultures while she (Meyer) also inoculated two children with "cultures" prepared by herself. None of the four children showed any symptoms Later three of the four children contracted measles spontaneously.

Takaki[27] cannot confirm Caronia's claims and thinks the alleged "micro-organisms" are due to the autolysis of the added animal organs. The cultures give non-specific results when used as antigen in complement fixation tests with measles convalescent serum. Takaki quotes Hektoen's results showing that minimal amounts of measles blood are infective and the so-called protective results of Caronia are due to the amount of blood in the cultures being sufficient to immunise

Szirmai and Jacobovics[28] cannot confirm any of Caronia's results.

De Villa inoculated Caronia's organism intradermally and produced a reaction in 65 per cent of children who had no history of measles He obtained no reaction in children vaccinated with cultures and in 75 per cent of children who had had measles.

On the available evidence therefore it would appear that none of Caronia's claims can be confirmed or justified

(*b*) *The Work of Tunnicliff.*—Within the last few years there has appeared a series of papers by Ruth Tunnicliff, of Chicago In 1917[29] she reported the isolation of a small round sometimes flattened, diplococcus occurring in short chains or in clumps which produced small green colonies on blood-agar. This organism was cultivated under strict anaerobic conditions from the throat secretion, but occasionally in the eye and nasal secretion taken in the eruptive and pre-eruptive stages of measles It has not been found in patients with fading measles eruptions or in diseases other than measles.

The primary cultures—i.e., from measles material will only develop on blood-agar under strict anaerobic conditions Growth occurs in five to 15 days usually about the ninth day, and the colonies are larger if glucose be added In subculture the organism grows under aerobic conditions It may then be grown on ordinary agar or in broth although the growth is scanty It ferments glucose and saccharose, and all strains but one ferment maltose. Mannite and lactose are occasionally fermented but never inulin salicin or raffinose The green-producing diplococcus is non-soluble in bile and does not liquify gelatin. The organism is *Gram-positive*. Recently isolated strains pass a Berkefeld N filter and the organism resists drying for 24 hours but not 48 It is easily killed by heat (45 minutes at 57° C.) but survives for 14 days at −0 2° C and for two months in 50 per cent glycerin In the early stages of the disease this diplococcus alone is found in the blood stream but at the height of the fever other organisms may also be isolated

Tunnicliff and Brown[30] later showed that opsonins for the diplococcus occurred in convalescent human serum and that complement-fixation tests showed a slight positive. Rabbits inoculated with the organism developed opsonins and agglutinins, the latter often in high titre. The agglutination tests is useful for identification but the organism tends to be auto-agglutinable.

Tunnicliff and Moody[31] attempted to transmit measles to animals Inoculation of monkeys with measles material produced, after eight days' incubation, a leucopænia and what were thought to be Koplik spots In one animal the inoculation protected against a subsequent injection of the diplococcus and in another of measles material

With guinea-pigs no definite results were obtained.

Experiments were carried out with 46 rabbits as follows: nine were inoculated intratracheally with measles material, 22 with diplococci, and 15 with control organisms

The authors thought they produced Koplik spots usually only one. About 85 per cent. of the animals showed a diffuse erythema or maculo-papular eruption which was never so marked as in human cases. The pathology of the Koplik spots produced was said to be similar to that of human cases described by other observers. Rabbits inoculated with the diplococcus are refractory to subsequent inoculations.

In connexion with the attempts to communicate measles to lower animals Nevin and Biltman[32] inoculated blood from measles patients into rabbits They claim that 33 per cent. of the rabbits showed Koplik spots and 100 per cent showed eruptions The authors state that the eruptions were not typical of measles but a general exanthem. The blood count and temperature are not reliable indications of experimental transmission of the disease.

Grund[33] injected nasopharyngeal secretions into rabbits He claims that 15 per cent show Koplik spots and 75 per cent. eruptions which are described as a diffuse punctate erythema with a maculo-papular rash

In contrast with the above results Purdy[34] was unable to find any evidence of transmission when measles material was inoculated into rabbits.

It is not possible to place reliance upon the above findings as the criteria of transmission on which the conclusions are drawn—namely, a general erythema and Koplik spots without other manifestations—cannot be termed reliable evidence of experimental measles, particularly with reference to the rabbit. It is well known to all laboratory workers who have used rabbits for experimental purposes that apparently normal uninoculated rabbits may show wide differences from the accepted average standards, particularly with reference to temperature and blood counts Observers are not all agreed that the transmission of measles to the rabbit has been accomplished

Tunnicliff[35] has attempted to find a skin reaction for measles analogous to the Dick test for scarlet fever An extracellular toxin was prepared, diluted 1 in 10, and injected intradermally It was found that only 50 per cent. of reactions were obtained in individuals who had no history of measles The toxin was neutralised by human convalescent serum and by immune goat serum, but not by normal goat serum As the extracellular toxin was not successful whole cultures were next tried. Young anaerobic cultures in dextrose ascitic fluid broth killed by 0 4 per cent phenol produced a skin reaction when injected undiluted into the shaved skin of the rabbit. This antigen is neutralised by convalescent human serum and by immune goat serum

For use on human beings the antigen was diluted so that no reaction was produced in individuals who had a history of measles At this strength (about 1 in 40) reactions were produced in persons not having had measles, but such reactions did not occur in measles patients after the rash nor in 96 per cent of persons who had had measles

Tunnicliff and Hoyne[36] immunised goats with cultures of the diplococcus. The serum was used to try to prevent the occurrence of measles in short period of immunity (two to four weeks) conferred by the injection, and after that time the child again becomes susceptible While the use of convalescent serum is not the ideal method for overcoming measles, it has a very great value particularly with young people. In children under 3 years of age measles is a very dangerous disease, and the longer the child manages to avoid the infection the less chance is there of complications ensuing when the disease does come If, therefore, convalescent serum will prevent a young child from becoming infected, it will carry him over a critical period of life to an age when the disease is likely to be less harmful

It is a debatable point as to the best way of using measles convalescent serum, whether to give large enough doses to prevent the onset of the disease, in which case the protection is only temporary until the passive immunity ceases, or to give sufficient merely to modify the form of the disease so that complications are reduced to a minimum and a lasting active immunity ensues It would appear that human convalescent serum is beneficial in any stage of the incubation as it will have, if not a protective, then a modifying effect, and its use is a powerful weapon in the hands of the clinician against the distressing mortality-rate

The Use of Animal Serum

Degkwitz,[17] of Munich, has produced from sheep a serum which he claims acts similarly to human convalescent serum Exact details as to the manufacture of this serum have not been published, but it would appear that sheep are repeatedly inoculated with filtrates of nasopharyngeal secretions from measles patients and with tissue cultures inoculated with measles "virus" No attempt is made to isolate a specific agent It is claimed that the serum from animals thus treated protects children exposed to measles. Degkwitz insists that the serum must be given on the fifth day of the rash of the child responsible for the infection The serum has been patented in this country and is manufactured on a commercial scale and advertised in Germany

The reports of the use of this serum have not, up to the present, been satisfactory

Kochmann[18] injected Degkwitz's serum into 19 children who had been exposed to measles Of these six did not contract measles, probably because they were already immune Of the remaining 13 who took measles, two died and one of these had been injected at the time stated by Degkwitz to be optimum Grave serum sickness occurred in one-third of the cases Kochmann considers Degkwitz's serum to be a complete failure

Kaupe[19] inoculated 18 children, of which three children had never had measles, while the remaining 15 had probable, though not certain, history of measles Injection was carried out as Degkwitz advised—namely, on the fifth day of the rash in the patient causing the infection The three susceptible children took typical measles, while four of the 15 others had serum sickness Kaupe advises against the use of Degkwitz's serum

Noeggerath, Oster, and Viethen[20] have tested Degkwitz's serum and state that it is without protective action if injected before infection If inoculated at the time advised by Degkwitz the serum seems to have an unfavourable effect They suggest that details of manufacture and testing the serum should be published and the serum taken off the market

Seligmann, Dingmann, and Alterthum[21] have used human convalescent serum with success in the Berlin Municipal Asylum for the Homeless and are in a position to compare Degkwitz's serum which they have tried They point out that it is often impracticable to adhere to Degkwitz's advice to inject his serum on a particular day of incubation, but in any case it does not matter as the serum does not protect

Recently, Degkwitz[22] states that his animal serum has only been withdrawn from advertising but not for sale He states that his instructions should be followed exactly and reports good results from various hospitals From the published results of the use of Degkwitz's serum it would appear that it is of no value Certainly the mystery in which its manufacture is shrouded, and the absence of any definite ætiological agent isolated, do not inspire any confidence in the finished product Until Degkwitz produces precise information as to the manufacture and testing of his serum and proves it to have a definite protective effect, it must be regarded as valueless in the prevention of measles infection

The Various Organisms Claimed to be the Causal Agent

(*a*) *Caronia's Organism*—In 1921-2-3 Caronia[23] published the results of his investigations into the causes of scarlet fever and measles His claims with regard to the latter disease may be summarised as follows —

> In Tarozzi-Noguchi media under anaerobic conditions there can be cultivated from the blood, bone-marrow, filtrate of nasopharyngeal secretion and cerebro-spinal fluid of children in the prodromal or rash stages of measles small Gram-negative micro-organisms, round in shape and arranged in pairs like diplococci Similar micro organisms can be demonstrated microscopically in the bone-marrow and in the conjunctival and naso pharyngeal secretions The serum of measles patients, especially in the rash stage and in convalescence, contains agglutinins, amboceptors, and opsonins specific to these organisms

Caronia claims to be able to produce a disease resembling measles in young rabbits by intravenous inoculation with blood from measles patients From the blood of the animals thus infected the micro organisms can be isolated and at a later date specific antibodies are found The intravenous injection of large doses of the micro-organism into young rabbits produces a disease similar to measles and which sometimes causes a fatal issue The infected animals are said to show serological and cultural characteristics very similar to those in the human disease

Caronia has attempted to immunise healthy children as a prophylactic measure with inactivated or weak cultures He claims to produce immunity to measles without any reaction Furthermore, Caronia states that the repeated inoculation of healthy children with large doses of cultures of the micro-organism produces a slight but typical form of measles Caronia's claims, however, have not been verified

Shortly after Caronia's original paper appeared I attempted to repeat the work Numerous modifications of Noguchi media were tried, ascitic fluid ascitic fluid and broth, broth, human serum, sheep serum, rabbit serum, with and without pieces of fresh rabbit kidney, and pieces of sterile potato Blood and filtered nasal washings from patients in the prodromal and early rash stages of measles were inoculated into the various media and incubated for periods up to one month In no instance could any definite organismal structures be found Films from these cultures stained with Giemsa's stain showed minute round bodies just on the limits of visibility (using a 2 mm apochromatic lens) and which to the inexperienced might be regarded as organisms Similar bodies, however, can be demonstrated in the control uninoculated tubes which have been similarly incubated and stained These minute bodies, which are protein particles, are to be found in media rich in protein and are probably caused by alterations in the hydrogen-ion concentration They have no bacteriological significance whatsoever and their presence has on more than one occasion led observers to draw erroneous conclusions regarding the ætiology of certain diseases[24]

I was unsuccessful in obtaining anything which could be regarded as a viable multiplying organism Experiments on the inoculation of rabbits with blood and filtered nasal secretions were also entirely negative There were no changes in the leucocytes, temperature, weight or condition of the animal which could be that the conclusions are justified from the evidence brought forward

Conclusion

In this review I have attempted to assess some of the recent work on measles as the facts and conclusions appeal to me The problem of the ætiology of measles has not yet been solved and more critical and convincing experiments are required The work reviewed above is a step in the right direction and it is gratifying to know that active research is being carried out by numerous workers in many different countries Summarising, therefore convalescent serum has a very definite prophylactic and also therapeutic value, but owing to the difficulties of obtaining an adequate and constant supply its use is limited Up to the present the reports on the uses of Degkwitz's serum have not indicated that it has any specific value With regard to the claims of various observers concerning the causal agent of measles, the work of Tunnicliff in my opinion. deserves consideration

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INDUSTRIAL RHEUMATISM

PROPOSED CLINIC IN LONDON

THE following memorandum, issued on behalf of a subcommittee of the International Society of Medical Hydrology gives a brief outline of the extent and nature of industrial rheumatism and suggests principles for its treatment at a clinic in London

Incidence and Causation

The information now available as to the prevalence of rheumatic diseases among industrial workers ("industrial rheumatism") reveals a remarkably uniform incidence in northern European countries It appears that "rheumatic diseases" (as defined by the British Ministry of Health) are accountable for about one-sixth of the total invalidity of insured persons in England Sweden Norway, and Denmark Next to the infirmities of age arthritis alone is regarded in Sweden as the most serious cause of disablement As regards the incidence of the different forms of rheumatic disease the British report[1] shows that out of 20 cases six may—roughly speaking—be described as lumbago four muscular rheumatism two sciatica or brachial neuralgia two rheumatoid arthritis. two osteoarthritis two subacute rheumatism, one rheumatic fever. and one gout But. although arthritis is accountable for only a small numerical minority of rheumatic cases the invalidity arising from arthritis is 'tedious painful, and costly," and actually causes as much incapacity for work, and, therefore. economic and financial loss as muscular rheumatism fibrositis, lumbago and sciatica combined

Like rheumatic fever and subacute rheumatism. chronic rheumatic affections of the joints and soft tissues are caused (in part) by climatic influences. Damp houses, the proximity of underground streams, certain localities and aspects, seasons of the year and types of weather increase the incidence of all these diseases They are much less prevalent in dry, warm climates Focal infection has been demonstrated in very many cases of arthritis, but the body may habitually give lodgment to many kinds of possibly-infective organisms Chilling of the body is one of the chief determining causes which enable these specific causes or agents to become infective. For this reason chill ranks high in cold and temperate climates as a cause of disease—rheumatic, catarrhal. tuberculous &c Habit and occupation are also determining factors and Dr. van Breemen has said that "every occupation has its own rheumatism

Need for Extended Facilities for Treatment

The inability of the spas to deal adequately with the vast number of rheumatic cases that require hydrotherapeutic treatment renders it essential that more extended facilities of this nature be made available There is an urgent need for centres of physical treatment in the large centres of population, such as already exist in continental towns In Berlin Dresden. Hanover, Vienna Amsterdam. &c. thousands of insured persons are treated near their own homes many of them coming for treatment after working hours The same methods are employed at the Bispebjerg Hospital in Copenhagen and at the Board of Pensions' institutions in Sweden. It may be noted that the curative value of diaphoretic drugs points to the activity of the skin as a normal avenue of relief in rheumatism and that heat is the most powerful of diaphoretics

On the preventive side it is to be hoped that pit-head baths and similar facilities for factory workers will be extended. If properly organised they will undoubtedly form an important aid in prophylaxis The efficacy of hot baths for the immediate relief of chill and over-fatigue was amply demonstrated in the war

The Ministry of Health has recently outlined a service for the medical care of industrial rheumatic cases including three different types of institution :—

"A *Physical Treatment Clinic* would serve as a clearing house-directing patients to the form and place of treatment best suited to their need, some to spa treatment, some for intensive study at an *arthritis unit* whilst others would be greatly benefited by treatment at the clinic itself These clinics would be out-patient institutions to supply those forms of physical treatment which are so often necessary for the children exposed to infection Only a few children (13 in all) were injected, and the results tended to show that the serum has no power to prevent measles if inoculated after the first two days following exposure They claim that the serum protects rabbits inoculated with measles diplococcus whereas controls treated with normal goat serum showed "symptoms characteristic of measles—viz , temperature, Koplik spots, and eruptions" If, however, the protocols of the experiment be analysed, it is found that one rabbit inoculated with an ascitic fluid broth culture of nasopharyngeal secretion had a rise of temperature of 2° F Another animal showed a rise of 1 3° and a faint eruption, while a third showed a temperature increase of 1° F and "Koplik spots"

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[1] The Incidence of Rheumatic Diseases Ministry of Health 1924 It must be remembered that the Report refers only to insured persons Insured females in England and Wales do not afford a representative sample of the female population of the same class as the younger age groups are much over-represented, so many women falling out of insurance on marriage. A true sample would show a somewhat higher proportion of chronic arthritis cases.

These experiments are few in number and the evidence cited is no proof of experimental transmission A disadvantage of goat serum is its toxicity

Hoyne and Gasul [37] have given Tunnicliff's goat serum a more extended trial Forty-eight infants and children had been exposed to measles, and of these serum was given to 39 Of these 34 were completely protected, while in the other five only a mild form of the disease resulted No deaths or complications occurred and the temperature was not greatly elevated The incubation periods were 20, 33, 33, 8, and 16 days Of the nine contacts who did not receive serum, eight took typical measles resulting in two deaths Serum rashes, persisting one or two days, were noted in 15 per cent of all the cases The passive immunity conferred by the injection of the goat serum is stated to last from two to four days

Recently Tunnicliff and Hoyne,[39] using the same batch of immune goat serum as Hoyne and Gasul,[37] injected 105 persons with a negative history of measles, but subjected to a definite exposure to the disease All persons who received serum five days or more after exposure developed measles The serum prevented measles in 45 per cent of persons injected on the fourth day after contact with measles patients, and in 97 per cent of those who received it in the first three days after exposure From 4 to 6 c cm were injected and 12 per cent of persons showed serum reactions Measles in children receiving serum was often very mild, but no modification of the disease as described by Zingher [7] and Weaver and Crooks,[11] following the use of convalescent serum, was observed

These reports on the use of immune goat serum are encouraging and strengthen the claim of Tunnicliff that the green-producing diplococcus is the causal agent of measles

(c) *Ferry and Fisher's Streptococcus* —Ferry and Fisher,[38] working in Detroit, have isolated an organism the toxin of which they *claim is specific to* measles The organism, which was obtained from the blood of patients in the early stages of the disease, is a small Gram-positive *aerobic* green-producing diplococcus, appearing both in pairs and in chains and which produces a soluble extracellular toxin It differs from the organism described by Tunnicliff in that it is an aerobe growing luxuriantly in the presence of oxygen and "that it produces a soluble toxin specific to measles" The authors are so confident of their claim that they have named the organism "*Streptococcus morbilli*"

Toxin was made by growing the organism in glucose broth, which, on being passed through a Berkefeld "W" candle gave a toxin said to contain 5000 skin doses per c cm Ferry and Fisher state that they have proved the "specific relationship of this toxin to the disease and the ætiological relationship to measles of the organism from which it was obtained"

Analysis of their protocols, however, indicates that these sweeping claims are not altogether borne out by the experimental data. For example, they state "Persons with no histories of measles gave positive skin reactions on intracutaneous injections of 0 1 c cm of a 1 500 dilution of the toxin, showing that they were sensitive to the toxin" Out of 35 tests on persons giving no history of measles only 14 gave positive skin reactions to intracutaneous injections of the toxin That is, only 40 per cent gave a positive reaction, and on this result the above conclusion was reached Surely with a 60 per cent of negative reactions the very opposite could be stated with equal correctness The statement "persons giving positive *histories of measles did not react to intracutaneous injections of the toxin*" is based on 30 injections in children with no positives and in 30 adults with two positives One feels that these numbers are not sufficient to warrant so sweeping a conclusion. Ferry and Fisher state that "patients in the pre eruptive and early stages of the disease gave positive skin reactions to the toxin, while those in the later stages and especially convalescents, gave negative skin reactions" They naïvely add "in hospital practice it is almost impossible to find a case of measles in the pre-eruptive stage, but of 15 cases obtained as early as possible seven gave positive reactions and none of the late and convalescent cases, 24 in all. reacted to the toxin"

The statement that positive skin reactions occur in the pre-eruptive and early stages of the disease is based on only seven positives out of 15 cases—i e , less than half, coupled with an admittance that they have not tried out the test on patients in the pre-eruptive stage of the disease Their statement that "when mixed with convalescent serum the toxin will not produce a positive skin reaction in susceptible persons" is very much modified in the next sentence when they say "in most instances the reaction was negative" This is a very vague statement from which to draw so important a conclusion

Ferry and Fisher report that the toxin is neutralised by an antitoxin prepared from animals by the injection of toxin, and that when mixed with scarlet fever antitoxin or normal horse serum the toxin is not neutralised Persons showing positive skin reactions with the toxin were made to give negative reactions by injection of measles convalescent serum A person showing a positive skin test was made negative by the injection of serum from an animal immunised with the toxin As the test was only carried out on one person it is an interesting fact to record, but no definite conclusions can be drawn from a single experiment

The statement that "serum of measles convalescent patients agglutinates suspensions of measles streptococcus while negative serum does not" was based on an experiment in which serum, pooled from several convalescent cases, was tested with four strains of measles streptococcus Only two of the four strains were agglutinated although the serum was from several patients and, therefore, more likely to give a higher percentage of positive results, 50 per cent of failures does not warrant a *statement* which indicates 100 per cent of results

The authors also say that "intracutaneous injections of live cultures of our organism produced severe local infections surrounded by large areas of hyperæmia, which at times extended over the entire abdomen and back, appearing very much as a typical measles rash" Their account of the protocols on which this definite statement is based is as follows "About 0 1 c cm of broth culture was injected intracutaneously and within two days there appeared a large raised area, about 4 cm in diameter, which next day resulted in an abscess with sloughing One rabbit showed a distinct redness over the entire abdomen and back while others were more or less hyperæmic" As a living culture of streptococcus was used, it is not surprising to learn that there was an abscess with sloughing "Distinct redness of the abdomen and back" cannot seriously be construed into a "typical measles rash" Similar results would have been obtained if any other virulent streptococcus had been used Similarly, killed cultures would also produce severe inflammatory reaction with the formation of a sterile abscess The work of Ferry and Fisher is described as a preliminary report and doubtless full details will shortly be available From the point of view of the laboratory worker, I do not think received 5000 mg -hours of radium, has been free for nine years, whilst the other two, aged 59 and 72, were operated on four and a half and four years ago respectively. Of three other cases treated in the same way two have died from intercurrent diseases and the third cannot be traced The patient treated with the excessive dose developed a late necrosis of the bone over an area the size of a shilling. In view of this sequela Dr Hofer and Dr Kofler resolved to decrease the dose to 3500 mg -hours in continuo and with this dose no untoward results have been noted As the prognosis is extremely bad in all cases of oral and nasal cancer these results are very remarkable and gratifying.

On behalf of the Senate the Rector of the University of Vienna has lodged a formal protest with the Ministry of Education against the conferment of the title of professor on Dr J. Bonvicini and Dr R Bauer The titles were given without the advice and presentation of the medical faculty of the University, and the incident. though in itself unusual, well shows what impossible conditions prevail in the University as regards the titles of professor or docent Though the latter rank is not very closely protected, the coveted title of professor is seldom recommended without long deliberation by the Academic Senate, three or four men being presented as candidates for each post As a rule the Ministry of Education falls in with the suggestions of the Senate, but it is not absolutely bound to do so

Dr Arnold Durig, professor of physiology in the University of Vienna, has recently been invited, for the fourth time, to occupy the chair of physiology at Berlin In spite of the very tempting offers, however. he has again decided to remain in Vienna, though the remuneration offered by the Austrian Ministry of Education is relatively small. His attitude has given great satisfaction to the Viennese students by whom his ability as a teacher is fully appreciated. and this satisfaction is shared by all who recognise in him one of the leading physiologists of Europe.

PARIS

(FROM OUR OWN CORRESPONDENTS)

The Recent Census

THE census returns have just been published, and it is found that of a total of 40 743 000 inhabitants of France 2,500 000 are foreign In the department of the Seine, which includes Paris, foreigners constitute 10 per cent of the population. The large influx into France is a source of anxiety to many economists who hold that immigration should be limited and that artificial conditions of monetary exchange should be corrected without delay. In the department of the Seine applicants for naturalisation will in future have to undergo a medical examination

Testicular Grafts

E Retterer has lately presented to the Societe de Biologie a description of the changes occurring in a simian testicular graft implanted in human testicle three and a half years ago , a second graft was made when the remains of the original graft were removed for examination It was found that tubules of epithelial cells were becoming converted into fibrous cords and that the portion of intertubular masses lying next the tubules was reticular in structure regions more remote being transformed into a mucoid tissue The epithelial elements of testicular grafts become slowly converted into fibrous tissue, the internal secretion supplied by the graft remaining active only as long as the epithelium survives

Remuneration of Medical Practice

Just at present certain medical fees in France cannot be demanded without some difficulty, because efforts are constantly being made by the State and by social insurance organisations to lower them. Official agencies of this kind offer very small remuneration for the treatment of war pensioners and cases of occupational sickness and accident The result is that many prominent medical men refuse to treat any cases of this kind, protesting that the fees offered do not allow them to maintain a respectable professional existence The tendency described, together with a movement, seemingly extending, towards general utilisation of public hospitals by persons amply able to pay for professional service, is adding seriously to the burdens borne by the French physicians

Medical Examinations

As already mentioned, a recent decree of the Faculte de Médecine made it necessary for candidates who had been rejected in one part of a medical examination to sit again—at the end of a year—for the whole examination, unless they had been able to secure a general average of 70 per cent of the possible marks The sudden introduction of this rule meant that many students would unexpectedly have to spend an extra year before qualification, and the National Union of Students' Associations protested vigorously to the Ministry of Education The Ministry has accordingly decided to suspend the new decree during the present scholastic year.

Prof A Pinard and his associates are bringing before the Chamber of Deputies a Bill making the presentation of a medical certificate, attesting the absence of contagious disease, obligatory for the legalisation of marriage

At a meeting of the Academie de Medecine on Dec. 28th Prof J Camus laid stress on the importance of preventing entry of small-pox into France. especially from Algeria Arabs from that country have recently been responsible for epidemics at Paris. Douai Valence, and other French towns During the past three months a number of cases have been isolated in Paris at the St. Louis Hospital and conspicuous municipal posters advise resort to the free vaccination stations

On Christmas Eve Prof Leon Bernard. of the Faculte de Medecine, was severely injured in a motor accident His condition is stated to be improving

MEDICINE AND THE LAW.

The Witness for the Crown

THE Leigh and District Medical Society passed last month a resolution recording its opinion that " in cases where criminal proceedings are instituted against medical men expert evidence should be obtained by the Home Office from men specially competent to deal with the department of medicine. surgery, gynæcology, or other special subject concerned " The resolution is understood to be a sequel to the recent criminal proceedings at Manchester Assizes where two medical practitioners were acquitted on a charge of manslaughter It will be recalled that an important question of fact for the jury to decide was whether or no there had been an illegal operation upon the dead woman Upon this issue Sir Bernard Spilsbury was called by the Crown to state the result of his examination of the body and to express his opinion how far what he found was consistent or inconsistent with the allegation of criminal abortion. His evidence and especially his inferences met with a vigorous challenge from gynæcologists and other specialist practitioners called on behalf of the other side . and the defence invited the jury to remember that the expert called by the Crown possessed no special knowledge or experience of gynæcology and that therefore his evidence had the less weight. The principle now put forward in the Leigh Society s resolution if endorsed by the medical profession generally. will doubtless engage the attention of the re-education of muscles and joints, and generally for the after-treatment of these diseases when the active stage has passed. They should be organised in close coöperation with an arthritis unit and with *the spa hospitals*, and provide continued supervision, observation, and after-care, following institutional treatment. Such clinics would be also of great service in diseases and conditions other than rheumatism, such as fractures, deformities, and diseases of the nervous system."[2]

As the physical clinic is the first link in the chain and should suffice for the immediate treatment of large numbers of cases, it is desirable to define its precise character, objects, and methods.

Proposed Physical Clinic in London.

(1) The basis of the treatment at the clinic, primarily for rheumatic cases, is heat and light, combined with movement and manipulation. It is held that both heat and movement are best conveyed to the body in water and that the manipulation bath is especially suitable for rheumatic cases. Hot air, vapour and electrical stimulation are valuable adjuncts. Great importance is attached to the sequence of physical impressions.

(2) The object of moist heat, manipulation, &c., is to relieve pain, stiffness and swelling, by a sedative action on the nerve centres and by increasing the blood and lymph circulation.

(3) A complete or combined physical treatment consists in a combination of two or more of the following procedures: (*a*) Either a hot manipulation pool or local bath (whirlpool, hot air, &c.) or dry manipulation; (*b*) a warm sedative pool, similar to the war-time pools; (*c*) light baths; (*d*) stimulant douches and friction baths; (*e*) remedial exercises; (*f*) electrical stimulation.

(4) It should go without saying that the clinic must be under the direction of a medical man who has had special experience in the various forms of treatment employed. Other necessary features are full clinical investigation and classification of cases, measurements of disability, records of treatment employed and reactions produced, tabulation of results.

(5) It is believed that a clinic of this character can be used: (*a*) For systematic preventive treatment in chill and over-fatigue; (*b*) in all apyrexial rheumatic diseases, both of the joints and soft tissues, accompanied by pain, stiffness, and swelling; (*c*) in many pyrexial cases, after the fever has subsided; (*d*) for periodical alleviation of incurable cases so as to enable arthritic persons in particular to continue in their occupations; (*e*) for non-rheumatic cases, cardiovascular or nervous, &c., for which physical treatment is indicated.

(6) It is proposed to establish in London a physical clinic on these lines for insured rheumatic persons. A minimum of 200 cases per day is regarded as an economic unit, the installation to be arranged so as to be capable of dealing with 400 cases per day. It is intended that the work of the clinic should be carried on in full cooperation with research work, with surgical and orthopædic hospital departments, and with the spa hospitals.

This memorandum is signed by Dr R. Fortescue Fox, Dr R. L. J. Llewellyn, and Dr M. B. Ray.

VIENNA

(FROM OUR OWN CORRESPONDENT.)

The Sick-Clubs and their Doctors.

AN unpleasant surprise has been sprung on the profession by the Government. Everyone in Vienna who works for wages—that is to say, everyone who receives regular weekly or monthly payment—is obliged to belong to one of the three large institutions (*Krankenkassa*) which provide free medical aid and sick pay for their members, and in each of the provinces there are two or three large and independent institutions of the same kind. Such is the political condition of this country that most of these institutes have elected Social Democrats to their managing boards, and as the electorate is very evenly divided between the Social Democrats and their reactionary opponents, the Christian Socialists, many people have found themselves, against their will, in Socialist institutes. The Government has now attempted to break the supremacy of the Socialists in the *Krankenkassa* by bringing before Parliament an Act enabling the formation of new sick-clubs, to be called *Wahlkassen*, or alternative clubs. The plan is that everyone shall be allowed to choose the institution to which he shall belong, and any body of 1500 members will be entitled to form a new club. This means that the old-established sick-clubs—with anything from 50,000 to 180,000 members each—will be broken up, numerous small clubs suddenly appearing in their stead. Naturally the interests of the doctors and the patients cannot be served by such small organisations. Whereas the funds accumulated by the big institutes insure both patients and doctors against undue risks and guarantee their fees and old age pensions, the small number of members of the new clubs means an increased risk of morbidity and a loss of all guarantee. It is recognised by all insurance companies that the broader the base—i.e., the bigger the numbers of members—the less the risk of failure. But here the Government is working in the face of this principle; it is going to narrow the base, and thus increase the risks. If the big institutions lose members they will have to dismiss doctors, and this will mean unemployment for a certain number of medical men whose only source of income is their work for the sick-clubs. But what causes even more annoyance is the fact that the Government—or rather the political parties forming it—have worked out their scheme without so much as asking the opinion of the profession, which has simply been faced with a fait accompli. There cannot, however, be any sick-clubs without doctors, and as unanimous repudiation of the *Wahlkassen* was expressed at several mass meetings last week, there are strong reasons for hoping that the plan will come to nothing. The public, or rather the prospective members of the clubs, are also able to understand that a large, powerful, well-established, and rich organisation is much better able to look after its members than a new, poor, and small body.

Whilst I was writing this, news reached the leaders of the profession that the Government intends to meet the demands of medical men by laying down in the Act the principle that all the rights of doctors serving the existing clubs must be secured before any branch club is brought into being. The profession has therefore resolved for the present not to carry out its threat of a medical strike, and is adopting the policy of "wait and see."

Cancer of the Nose.

At a recent meeting of the Vienna Medical Society Dr G. Hofer demonstrated four patients who have remained cured for long periods after operation for nasal cancer. Working in cooperation with Dr Kofler, he discarded the methods previously used in treating malignant disease of the nose, and resolved to remove all the diseased tissue, commencing with an incision above the orbit or at the fossa canina or approaching the nasal structures with Langenbeck's incision, according to the situation of the tumour. The entire mucous membrane of the nose and the accessory sinuses are removed and operation is immediately followed by application of a large dose of radium, which is well borne by the nasal tissues. Dr Hofer now uses very big doses—viz., 2900–3500 mg.-hours in continuo. Cancer of the nose has long been regarded as an absolutely fatal disease and statistics show that until 1914 only 2 per cent. of patients remained free from recurrence a year after operation. The metastatic growths are late, but local recurrence is very common. Of the four patients demonstrated by Dr Hofer and Dr Kofler, one, who is 68 years old, has had no return of the growth during nine and a half years; another, aged 67, who plan is obviously an advance It is part of a general movement throughout the world towards efficient port sanitation and simpler quarantine procedure The port medical services employ few officers, but are immensely important. every year an enormous amount of work has to be done to prevent the admittance of infectious disease into this country from abroad Some idea of the scope of the work may be gleaned from the following summaries of activity at Liverpool and Bristol during 1925

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[2] THE LANCET, Nov. 6th, 1926.

Port of Liverpool

Dr A. A. Mussen mentions that 6650 inspections of ships were made and 995 had nuisances on board, more in the foreign-going than in the coastwise section, more in British than in foreign ships To prevent the importation of infectious disease, ships from ports deemed infected and ships with known infectious disease on board are visited before docking by an assistant medical officer, all ships are visited by a sanitary inspector as soon as possible after docking, and everything possible is done to diminish rats and to find plague infection amongst them at once should it arise. It is now under consideration whether captains should not report by wireless if they have cases of sickness on board, in order that all such ships may be visited by a medical officer During the year 191 cases of infectious disease were landed at Liverpool, among them one case of small-pox was found in an outward-going steamer; 13 cases of typhoid fever, 4 of paratyphoid, 19 of malaria, 64 of tuberculosis (the majority were passengers), and 5 cases of anthrax occurred in the area Rat plague, apt to remain long latent is always being sought in ships, by inspection, by careful sampling of the rats all over the ship, by watching for dead or sick rats during cargo discharge, and on the docks. by trapping and preventing harbourage by quick removal of refuse, by cleanliness, and by raising temporary wooden offices 18 in. above the ground. Dead rats are examined by the city bacteriologist for plague, but it was not found in any case in this year Fumigation of a ship is asked for if many rats are found; it is rarely necessary to fumigate every six months Much may be done when a ship is building towards making her ratproof: a new improved rat-guard for hawsers, devised by Dr C F. White (The Lancet, 1925 i. 695), has found approval Fumigation was done on 112 ships with SO_2, in 21 with HCN, in every case the whole ship being fumigated at one operation. Fewer rats were caught this year than last, the reward, we may hope, of perseverance On ships 11,088 rats and mice were caught by the official rat-catcher from the quays 2508 In all 61,117 rats were taken at 13,000 visits in the port and the city, and as usual nearly all those caught on board were black; most of those on the quays and in the warehouses were black, but in the sewers there was hardly a black rat, almost all were brown The Minister of Health visited the port and was shown the methods of killing rats and fleas including the methods of fumigation Zyklon, a mixture of 97 5 per cent of hydrocyanic acid with 2 5 per cent tear gas, soaked up in kieselguhr, is reported very effective in concentration of 0 15 per cent HCN for two hours Thorough after-ventilation is essential, and the tear gas is not thought to be a complete safeguard At the city clinics for venereal cases there were 2386 new cases, at the Seamen's Dispensary 1084; total attendances were 43,359 and 27 265, which seems to suggest that the seamen attended more persistently Of every seven cases two were syphilis, one soft chancre, and four gonorrhœa Ships are said to be cleaner than formerly, sanitary fittings are better and better respected, and the men complain more readily of infestations Yet more nuisances are reported this year than in 1924—2701 dirty forecastles and 681 foul water-closets Aliens to the number of 21 613 were inspected and 10 certificates of rejection issued A medical inspection room is wanted. Verminous emigrants were dealt with at the city hospitals Meat inspection is much simplified under the new regulations 1192 tons of meat were condemned as brine-stained or decomposed, and destroyed or released for industrial processes; similarly 845 tons of fruit and 6085 tons of cereals Cheese in a closed hold for six days caused CO_2 poisoning of two men who recovered; preliminary ventilation will be done in future. All second-class and steerage passengers outward bound are inspected by the Board of Trade, and all crews on ships going to America An inspector of the Port Sanitary Authority attends these inspections to supervise the removal of all who are rejected for actual or suspected infectious disease In 231 inspections 23 persons were rejected—5 for measles, 4 for scabies Three cases of trachoma were found in transmigrants

Port of Bristol

Dr D S Davies reports that Bristol Port lost her launch by sale in 1912, and her port hospital ship by collision in 1916, and that neither has been replaced Infected and suspected ships are visited in the roads by a hired tug, other ships are visited on arrival in the docks by the sanitary inspector. If there are infectious cases on board or if the ship comes from infected ports the medical officer is informed and visits Cases are then removed to the city hospitals, disinfection and other necessary measures being carried out. In 1925 20 cases of infectious disease were dealt with—8 of malaria, 6 of enteric fever, and 3 of tuberculosis Four cases of beri-beri, in Indians from Australia were sent to the Royal Infirmary. and 2 cases of (tertian) malaria to Ham Green Hospital The assistant medical officer performs duties under the Dangerous Drugs Act. During the year 2267 ships were inspected, 34 ships were fumigated, 1 with HCN (no rats), and 33 with sulphur (35 rats per ship); 11,626 rats were caught or found dead, about one-fifth on ships, 116 of these were examined, but no plague rats found. The chief defects on ships were dirty forecastles and foul closets 191 (8 4 per cent) ships had defects, more numerous in foreign (10 5) than in coastwise (3 7) ships, and in foreign-owned (8 5) than in British (8 2) steamers 2225 dirty or infected beds were destroyed One ton of meat, 11 tons flour, 20 tons wheat, and 21 tons of fruit and vegetables were destroyed

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INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC 25TH 1926

Notifications—The following cases of infectious disease were notified during the week. Small-pox, 302 (last week 315); scarlet fever, 1314, diphtheria, 1056, enteric fever, 30; pneumonia, 1173; puerperal fever, 39; puerperal pyrexia, 104, cerebro-spinal fever, 7, acute poliomyelitis, 23; acute polio-encephalitis, 6, encephalitis lethargica, 29; dysentery, 14 ophthalmia neonatorum, 100 There was no case of cholera, plague or typhus fever notified during the week.

Deaths—In the aggregate of great towns, including London, there was no death from small-pox, 4 (0) from enteric fever, 14 (0) from measles 9 (0) from scarlet fever, 39 (16) from whooping-cough, 36 (9) from diphtheria, 36 (6) from diarrhœa and enteritis under 2 years, and 69 (16) from influenza The figures in parentheses are those for London itself, in which, it will be noted, there has again been no death during the week from measles, scarlet fever, or enteric fever

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Voluntary Hospitals and Poor-law Infirmaries. Mr Reginald E Watson acting chairman of the West London Hospital, has suggested that there should be a conference between the chairmen of the London voluntary hospitals and "those responsible for the future health services of the County of London" to discuss "whether rivalry or coöperation is to be the ruling policy"

Manchester Coroner's Annual Report.—The city coroner, Mr C W W Surridge, states in his annual report that during 1926 the number of cases referred to the coroner totalled 1130 Inquests held numbered 633, a decrease of 40 compared with 1925 The chief cases were deaths due to motor vehicles 87—an increase of 30 on the previous year tram-cars, 4; scalds 121; burns, 18, manslaughter and murder 5, and alcoholism, 10

Home Office. But whether the resolution is regarded as in the interests of the public or in the interests of the profession, it is unlikely to lead to any change of policy. The Home Office and the Director of Public Prosecutions have adequate facilities for summoning whatever expert testimony may be required.

English traditions do not encourage the practice of straining every nerve and employing every possible resource in the endeavour to obtain a verdict of "guilty" at all costs. The duty of the prosecution is not to press for a conviction but to present the facts fairly to the court and jury. The Home Office may show itself reluctant to select a large standing panel of medical and surgical specialists to enter the witness-box on behalf of the Crown whenever similar experts are likely to be called for the defence. In so far as the view of the legal profession is material, it would probably be against change. Prosecuting counsel are content to rely—as in the case of the dispute over the criminal responsibility of Ronald True—upon available official or semi-official witnesses giving their evidence with fairness and restraint. The defending barrister will hardly desire a change if it means that he will lose the advocate's legitimate weapon of pointing out to the jury that both in weight and number his own witnesses are superior to those of the Crown. Viewed, indeed, from the angle of the legal profession, the proceedings at Manchester ran a normal course. Both the magistrates' court and the coroner's court felt reasonably satisfied that there was a prima facie case for investigation at the assizes; at the assizes the defendants were satisfactorily acquitted, the jury evidently accepting the accounts of the occurrence given by the accused themselves, and attaching weight to the other evidence for the defence. The placing of professional men in the dock on charges which are not substantiated is, of course, regrettable; it is by no means clear, however, that the recent trial at the Manchester Assizes would have been avoided by adopting the principle for which the Leigh and District Medical Society contends.

The Legitimacy Act, 1926.

The date of commencement of the new Legitimacy Act was wrongly stated in this column in THE LANCET of Dec. 25th (p. 1341). The Act is not postponed to July 1st but took effect at the beginning of the present year. In one sense the error was less serious because in its broad outlines the new legislation is retrospective, so that legitimation by subsequent marriage has become possible whether the marriage took place before or after the commencement of the Act. But in three other respects the date of the operation of the Act is vital. To begin with, the parents of a legitimated person must furnish the Registrar-General with information with a view to re-registering the birth of the legitimated person by a date which depends upon the date when the Act came into force—i.e., if the marriage takes place after Jan. 1st, 1927, then within three months of the date of marriage, but if the marriage took place before the commencement of the Act, then within six months of such commencement. Secondly, the new right of an illegitimate child and an illegitimate child's mother to succeed to one another's property if the other dies intestate will operate only where death occurs after the commencement of the Act. Finally, the new law contains an express saving that nothing in the Act shall affect the operation or construction of any disposition coming into operation before the commencement of the Act or affect any rights under the intestacy of a person dying before such commencement. For these reasons it is particularly necessary to bear in mind that the date of commencement of the Act was Jan. 1st, 1927, and the misstatement in a previous issue is the more regretted.

TUBERCULIN DISPENSARY BENEVOLENT SOCIETY.—The Tuberculin Dispensary at 32, Fitzroy-street, London, W. 1, will in future be open on Mondays and Thursdays from 2.30 to 5 P.M.

Public Health Services.

A LABORATORY SERVICE FOR LANCASHIRE.

THE Lancashire Insurance Committee have formulated a scheme for assisting insurance practitioners in the scientific treatment of diseases which call for prompt pathological and bacteriological services, and for simplifying the administrative procedure where stock and autogenous vaccines are required. An insured person is entitled, as part of medical benefit under the Insurance Act, to proper and sufficient drugs (including vaccines) requisite for the treatment of his case. This provision does not, however, extend to laboratory diagnostic services. If an autogenous vaccine is to be prepared, then under the old procedure the insurance practitioner selects the source of supply, obtains a collection and transmission outfit, and pays the laboratory authorities. He afterwards sends the receipted bill to the Insurance Committee, together with a pro forma prescription, when the cost is reimbursed to him. The large increase in the use of vaccines, and numerous inquiries received by the Committee from insurance practitioners in Lancashire have emphasised the desirability for a simplification of procedure, and of relieving insurance practitioners of much correspondence, payment of fees, and other clerical work at present unavoidable. Arrangements have accordingly been made with the Wigan Infirmary (Pathological Department), which is in charge of Dr. W. E. Cooke, to supply stock and autogenous vaccines to the order of insurance practitioners, and to report upon any material sent for examination. Insured persons as such are not entitled to laboratory diagnostic facilities, but it is understood that the Wigan Infirmary Board is prepared to furnish free of cost the diagnostic reports required for these persons. Free outfits are being provided for the collection and transmission of material. Should an autogenous vaccine be required, the necessary material is to be sent accompanied by brief details on the form provided, and a pro forma prescription on the usual official form. Where a stock vaccine only is required, all that need be sent to the Wigan Infirmary is a prescription on the official form. Payment will be made direct to the Infirmary Board by the Insurance Committee. It is clearly stated that the scheme does not supersede existing arrangements for the supply of vaccines, but should be regarded as an alternative provision to be used at the option of the insurance practitioner. The scheme came into operation on Jan. 1st. The laboratory is open day and night, and urgent examinations can be made at any time.

In calling attention to this new service the Insurance Committee reminds practitioners in Lancashire that certain pathological and bacteriological services are provided free out of public funds through public health authorities, chiefly in connexion with tuberculosis, venereal diseases, diphtheria, and the typhoid group of fevers. Where practitioners have been notified of these services they should be used and specimens sent to laboratories with which the district local authority has made arrangements, when the fee will be paid direct by the authority to the laboratory.

PORT SANITATION.

THE annual report of the Surgeon-General of the United States Public Health Service refers to the new plan by which emigrants to the States are inspected at European ports. This inspection is regarded as an unqualified success though "a severe drain on the medical personnel of the Service, both on account of the number of officers needed and the special training required." At present 28 regular medical officers of the Service are on duty in Europe in the following countries: England, 4; Ireland, 5; Germany, 8; Scotland, Norway, and Sweden, in each, 2; and 1 each in Poland, France, Holland, Belgium, and Denmark. From the point of view of emigrants and the medical officers of transatlantic liners the new

In conclusion, there can be no doubt that the Mental Deficiency Act of 1913 is not only a sound measure of social reform, but that it is in the highest degree a humane measure I find it simply amazing that any person who has read the Report of the Royal Commission of 1904, or who has any practical knowledge of mental defectives, or who is even really concerned for the welfare of the community, should obstruct a Bill, the sole purpose of which is the remedying of defects which experience has revealed in the original Act I am convinced from the comments and letters which have reached me that workers who have spent years in endeavouring to improve the lot of the unfortunate mental defectives will view the abandonment of the Bill with dismay

I am, Sir, yours faithfully,
A F TREDGOLD, M D.

New Cavendish street, W , Jan 4th, 1927

OSTEOGENESIS IMPERFECTA

To the Editor of THE LANCET

SIR,—I have read with interest the case recorded by Dr Donald Hunter in your issue of Jan 1st There is at present in the Wakefield Hospital a somewhat similar case A J , aged 13, has blue sclerotics His head is large and his eyes are prominent His father and two brothers have also blue sclerotics, but appear otherwise quite normal The first fracture occurred when he was about a year old, and altogether about 23 fractures affecting the lower extremities only A few months ago he was admitted with fractures of both femora and both tibiæ This time his left femur and right tibia were fractured and the right femur snapped after admission without any very obvious cause Pain was severe but of short duration Fractures have been simple except on one occasion when he had a severe compound fracture of the right leg Union has always occurred within the ordinary period The Wassermann reaction is negative

I am, Sir, yours faithfully,
Wakefield Jan 3rd 1927 J W THOMSON.

ADOLESCENT ALBUMINURIA

To the Editor of THE LANCET

SIR,—In reply to Dr Geoffrey Evans's very interesting letter I rather gather, perhaps mistakenly, that he is inclined to believe that the presence of albumin in an after-rest specimen definitely lifts the case out of the class of adolescent albuminuria This is undoubtedly true, of course, in a number of instances, but not, I think, in a good many others; and it is rather the *consistent* appearance of albumin in after-rest specimens that should be regarded, as I suggested in my original article, from a more stringent point of view Thus I find in the last 26 cases before me in which the after-rest specimen contained albumin in otherwise healthy-seeming boys and men, in 16 of them it had disappeared from a subsequent after-rest specimen And I think there is very little doubt that these were all cases of ordinary adolescent albuminuria Even when the after-rest specimen consistently contains albumin it is sometimes difficult, and one would welcome any light on the problem to differentiate it in the absence of any other signs or symptoms from ordinary adolescent albuminuria Thus I have before me the case of a boy of 16 in whom albumin was first found in October, 1925, the after-rest specimen being then free. Examined again, however, on March 4th March 17th, March 31st, May 14th, and August 12th, 1926, every after-rest specimen as well as every after-exercise specimen contained albumin, the boy s general health being apparently excellent and his blood-urea, urine-urea concentration test, and microscopical examination being all normal Had he throughout all these months been suffering from some toxæmic condition or definite damage to renal tissue, it is hard to believe that he would not have exhibited some other manifestations of ill-health And this case, too, I am inclined to think, is really one of harmless adolescent albuminuria The fact remains, however, that in the very great majority of cases the after-rest specimen is free from albumin —I am, Sir, yours faithfully,

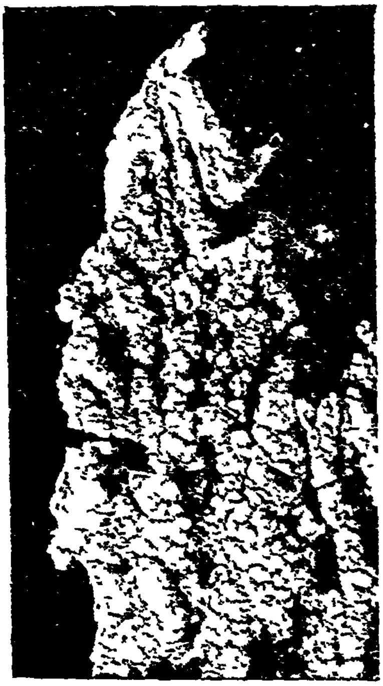
H H. BASHFORD.

Jan 1st, 1927. Medical Department, General Post Office.

DIFFUSE GASTRIC POLYPOSIS

To the Editor of THE LANCET

SIR,—In your recent annotation on a paper by Brunn and Pearl on Diffuse Gastric Polyposis[1] no reference is made to the only case of the kind recorded in England In the *Guy's Hospital Reports* for July, 1926, I described a typical case in which complete gastrectomy was successfully performed by Mr. Lancelot Bromley A man aged 36, had suffered from anæmia since 1917, together with diarrhœa, nausea, and occasional attacks of vomiting. On admission he was found to have complete achlorhydria and constant occult blood in his *stools*, and the X rays showed a well-marked deformity on the greater curvature of his stomach Evacuation occurred with extreme rapidity The hæmoglobin percentage, which had been 65 in May 1925 was now only 44 As it seemed very probable that a growth was present in spite of the long history, Mr Bromley operated on April 18th, 1926 He found that the wall of the stomach was very thick, with the vessels on the outside much injected, it did not, however, feel like a growth As the condition was clearly very abnormal, and was probably the cause of the anæmia it was decided to perform a complete gastrectomy The patient recovered satisfactorily, and when seen ten months later he was looking very well and felt better than he had done since 1917 His hæmoglobin percentage was 85, and no occult blood was present in the *stools*



A portion of the excised stomach photographed after fixation Reduced one-half (Taken from the Guy's Hospital Reports.)

Prof Adrian Stokes reported that the mucous membrane of the excised stomach was greatly thickened and covered with closely packed polypi (a portion of a half scale photograph is here reproduced), which had failed to develop stalks on account of their close proximity to each other Numerous superficial hæmorrhages were present Microscopical examination showed that the condition was one of extreme hypertrophic gastritis There was hyperplasia and hypertrophy of all the coats, most evident in the mucous coat at the cardiac end; there was clear evidence of subacute and chronic inflammatory changes in the mucosa, there was no evidence of tumour formation and no metaplasia of the epithelium

I am, Sir, yours faithfully,
ARTHUR F. HURST

New Lodge Clinic Windsor Forest Dec 27th, 1926

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[1] THE LANCET 1926, ii , 1280

Correspondence.

"Audi alteram partem"

TREATMENT OF TUBERCULOSIS BY MR SPAHLINGER'S METHODS

To the Editor of THE LANCET

SIR,—In his article which appeared in your issue of Jan 1st, Dr Thomas Nelson records the history of ten cases treated by the Spahlinger methods at St George's Hospital in 1913-14 It would be interesting to know why he did not include the eleventh case While admitting into the category of those which he appears to regard as relevant to the issue, two cases one of which received three injections and the other six, he makes no mention of one which may legitimately be described as one of Spahlinger's most striking successes This was that of a man Edward Thomas Allen, now aged 44, whom I had treated at the French Hospital by the Spahlinger methods for some weeks, and whom I handed over to my friend Arthur Latham at St George's because the lay authorities at the French Hospital objected to his continued presence there, on the ground that he did not comply with the French-speaking qualification I have to-day seen and spoken with this man, who is now, and for the last eight years has been, a luggage porter at Claridge's Hotel He reminded me that when I first saw him his weight had fallen from his normal of 13 st 4 lb to 8 st 1 lb · that he was treated at St George's by the Spahlinger remedies for several weeks, receiving an injection on the average of one every two days At the end of that time his improvement was such that he was discharged The improvement has been fully maintained He has completely regained his weight, and is engaged in very active physical work

That this case fails to appear in Dr Nelson's account is susceptible of but two explanations The one is that it was deliberately suppressed by Dr Nelson, which I decline to believe, the other, that the records of the Spahlinger cases at St George's are so defective as to render them completely valueless for any statistical purpose —Your obedient servant

LEONARD WILLIAMS

Harley House, N W 1, Jan 3rd, 1927

THE ABANDONED MENTAL DEFICIENCY BILL

To the Editor of THE LANCET

SIR,—In view of the misunderstanding which appears to prevail in certain quarters regarding the now abandoned Mental Deficiency Bill, perhaps you will be good enough to allow me to attempt to explain the purpose and scope of this measure

It is apparently thought by some persons that the Mental Deficiency Act of 1913, if not actually designed to obtain control of individuals who are quite capable of looking after themselves, has at all events been used for such a purpose, and that consequently any amendment which would facilitate its working should be strenuously resisted There could be no more mistaken view The Act of 1913 was a long overdue measure passed in the interests not only of the community but also of defectives themselves, and it has not inaptly been termed "The Charter of the Feeble-minded" Speaking from a large experience of the working of this Act, I have never known, or heard of, a single instance in which a person has been dealt with under it who was not in need of supervision It should also be pointed out that, contrary to what is often thought, certification under the Act is by no means irrevocable Every first order automatically expires at the end of a year and each case must then be reviewed and, if considered necessary, another order signed A further review takes place at the expiration of another year and subsequently at five-yearly periods

As a matter of fact, far from being applied improperly or too widely, circumstances have combined to interfere very seriously with the working of the Act, and to withhold from thousands of defectives the protection of which they are in need As evidence of this I may state that while the total number of defectives in the country is estimated at approximately 174,000, about half of whom are in *urgent* need of care, the total number dealt with under the Act of Jan 1st, 1926, was only 36,815, of whom 15,733 were under supervision in their own homes

There are two main reasons for this One is the utter inadequacy of existing accommodation, the other is the wording of the definitions of the Act According to the Act of 1913, the mental defect must have existed "from birth or from an early age" Personally, I have always contended, and taught, that the chief purpose of these words was to differentiate between arrested mental development and disorder or decay arising *after* the mind had attained to that degree of development which would enable the individual to transact the ordinary affairs of life, and that the words should be interpreted in this sense But many magistrates, and some medical men, have placed a much narrower construction upon them, they have taken "an early age" to mean the first few years of life, and it is this which has led to considerable difficulty in the administration of the Act

For instance, there are individuals in whom the defect, although undoubtedly of such a nature as to render them in need of care, supervision, and control, has not made itself evident until the years of adolescence The increased demands of life, even of a simple one, have then rendered patent a deficiency which had hitherto been latent There are other cases in which an arrest of mental development has actually been caused during early adolescence, as, for example, by encephalitis lethargica There are yet others where no early history is obtainable It is obvious that cases of this kind, and they are numerous, will be excluded from the protection of the Act by a narrow interpretation of the words "from an early age," and a recent Home Office Committee were so much impressed by this that they recommended that these words should be entirely deleted In my opinion, however, such deletion, in the absence of any definition of mental defect, would have brought within the scope of the Act persons who were not really mentally defective and to whom it was not meant to apply, and I think the Minister of Health was wise in introducing a clause which, whilst doing away with the difficulty resulting from the original definition, yet made it clear that mental defectiveness was not disorder or decay of mind, but "arrested or incomplete" mental development

The question has been raised as to the applicability of the new definition to adults I am very definitely of the opinion that, with the exception of adults in whom the defect has been brought about before the termination of adolescence, the new definition would no more apply to adults than did the old one Since mind reaches a stage of development which may be regarded as normal or adequate for the ordinary purposes of life before the termination of adolescence, it is clear that any change taking place *after* this is not mental arrest Personally, I should certainly object to any definition which extended the scope of the Act to cases of mental disorder or decay, which are already provided for by the Lunacy Act, but I am convinced that it is not intended to do this and that the Bill does not, in fact, do so

It is important to point out that the definition of mental defectiveness in the Bill must be read in conjunction with the definitions contained in the preceding clause For a person to come within the scope of the Act the arrested or incomplete development of mind must be of such a degree as to prevent him from "guarding himself against common physical dangers", or from "managing himself or his affairs", or be so pronounced as to necessitate "care, supervision, and control" for his own protection or for the protection of others peutic aspect, notably in regard to the limitation of the intake of water.

If the authors are correct in regard to the hypercholesterolæmia, the passage which they quote from my paper (or rather from my quotation) ought to be altered to " the frequency of hypercholesterolæmia in *pseudo-uræmic* [instead of uræmic] and chronic *nephrotic* [instead of nephritic] cases "

I am, Sir, yours faithfully,
London, W 1, Jan 1st, 1927 F PARKES WEBER

SYPHILIS AND MALIGNANT DISEASE

To the Editor of THE LANCET

SIR,—I should like to learn of the record of a case of undoubted malignant disease associated with acute generalised syphilis and the effect of the latter upon the former I do not refer to malignant disease following tertiary syphilis or arising upon a syphilitic scar These cases are common and probably due to chronic irritation by an attenuated virus Acute syphilis is destructive to embryonic tissue—e g , the fertilised ovum—hence this query

I am, Sir, yours faithfully,
London, W , Jan 1st, 1927 M W BROWDY.

The Services.

ROYAL NAVAL MEDICAL SERVICE

E C Downer and R H Dummett to be Surg Lts

ROYAL NAVAL VOLUNTEER RESERVE

Prob Surg Lt J A. Kerr is confirmed in rank

ROYAL ARMY MEDICAL CORPS

Capts to be Majs H C Godding, T J L Thompson, and W E K Coles (Prov)

ARMY DENTAL CORPS

Maj J G Worsley retires, receiving a gratuity

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt R S Morshead, from the Active List, to be Capt

ROYAL AIR FORCE

Squadron Leader H B Porteous to be Wing Commander

INDIAN MEDICAL SERVICE.

The King has approved the appointment of Major-General F H G Hutchinson, C I E , as Honorary Surgeon to the King, in succession to Major-General Sir Robert C Macwatt, C I E , who has retired

The King has approved the regrading of the following officers —Capts R W H Miller and C J Smith, Lts T J Davidson, E G Michelson, D MacD Fraser, and S C H Worseldine

Nasiruddin Ahmed to be Temp Lt.

The King has approved the retirement of Maj H R B Gibson

Maj W R Stewart has assumed the appointment of Second-in-Command, Indian Military Hospital, Karachi, vice Capt S D Sondhi, relieved , and Lt -Col D C V Fitzgerald has assumed command of the Indian Military Hospital, Karachi, vice Maj C Newton Davis, relieved. Lt -Col R F. Baird, officiating Inspector-General of Civil Hospitals, United Provinces, on relief, to Allahabad as Civil Surgeon Lt -Col C A Sprawson, professor of medicine, King George's Medical College, Lucknow, and Dr Saivid Ghulam Murtaza, lecturer in medicine, Agra Medical School, have been appointed Members of the Governing Body of the United Provinces State Medical Faculty Maj E A Perry, military medical officer, Roorkee, to be the civil medical officer of Roorkee, in addition to his own duties, vice Capt G A. Hildreth , and Maj -Gen W H Ogilvie, to be officiating Director of Medical Services in India vice Maj -Gen O L. Robinson, granted privilege leave ex-India.

GUY'S HOSPITAL —It is stated that Sir Gilbert Wills, who is a governor of the hospital, has promised to give £50 000 to the bicentenary fund in order that the out-patients' and casualty department may be extended and their equipment brought up to date

Medical News.

SOCIETY OF APOTHECARIES OF LONDON —At recent examinations the following candidates satisfied the examiners in the undermentioned subjects .—

Surgery —F W Barton, Middlesex Hosp , G Danby, Manchester , J H Gillatt, Sheffield , T W Riseley, Cardiff , K Roberts, Liverpool , N S J Roberts (Sect I), Bristol and Royal Free Hosp , and J B Scarr and S Wray Manchester

Medicine —A C F Barrow, Edinburgh , G Danby, Manchester , H J Fordham, St Mary's Hosp , and W E Ivers and C H Spencer, Manchester

Forensic Medicine.—L Ashkenza, Middlesex Hosp , R Bobo, Paris , G Danby, Manchester , S K Rigg, Bristol ; L W Rose, Guy's Hosp , and T. de L Walker, King's College Hosp

Midwifery —F G Hardaker, St Mary's Hosp ; T C Lansdale, Guy's Hosp , and L Wasef, Manchester.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery F W Barton, H J Fordham, W E Ivers, T W Riseley, J B Scarr, and C H Spencer

UNIVERSITY OF LONDON —At a meeting of the Senate held on Dec 15th the Vice-Chancellor stated that an offer of £10,000 towards the establishment of a Chair of Dietetics had been received from a lady who desired to remain anonymous —It was announced that the William Julius Mickle Fellowship for 1927 had been awarded to Mr Percival Hartley, D Sc , in respect of his work on special problems in connexion with diphtheria and general serology and immunity The Fellowship this year is of the value of about £280 —An offer by Lady Godlee of a sum of money (to be held in trust for University College and University College Hospital Medical School) to found a Rickman Godlee Lectureship in memory of her husband, the late Sir Rickman J Godlee, Bart , was accepted , and it was resolved to convey the thanks of the Senate to Lady Godlee for her gift

University College —A course of three lectures on the Action of the Sense Organs is to be given by Dr E D Adrian, F R S , on Feb 9th, 16th, and 23rd, at 5 P M. ; also a course of three lectures on Biological Action of Light will be given by Dr D T Harris on Jan 20th and 27th and Feb 3rd at 5 P M. , and a course of six lectures on Cytology in Relation to Physiological Processes will also be given by Dr R J Ludford on Jan 20th, 27th, and Feb 3rd, 10th, 17th and 24th at 5 30 P M.

Middlesex Hospital Medical School —A course of four lectures on Current Views on Internal Secretion will be given by Prof Swale Vincent on Jan 14th, 18th, 21st and 25th at 4 P M

Admission to all these courses is free, without ticket

St Thomas's Hospital —A course of three lectures on a subject connected with pharmacology is to be given during February by Prof W Storm van Leeuwen, of the University of Leiden

ROYAL SANITARY INSTITUTE —A sessional meeting will be held on Friday, Jan. 28th, at 7 30 P M , in the small Town Hall, Reading, when a discussion on Cancer will be opened by Sir Stewart Abram, who will speak from the point of view of the physician and the public authority. Dr T Skene Keith will speak on Cancer Research To-day, and Mr J L Joyce on The Present Position of the Treatment of Cancer Prof H R Kenwood will preside On the following day visits will be paid to places in the neighbourhood Those proposing to attend the discussions, luncheon and excursions should notify Dr H J Milligan, Old College Buildings, St Laurence's Churchyard, Reading, not later than Jan 22nd

PEOPLE'S LEAGUE OF HEALTH —The Sims Woodhead series of ten constructive educational health lectures will be given in the lecture room of the Medical Society of London, 11, Chandos-street, Cavendish-square, W , beginning on Monday, Jan. 31st, at 6 P M , and continuing on the following Mondays at the same hour Among those who have promised to lecture are Prof H E Roaf, Mr E B Turner, Mr Vincent Denne, Dr H Gardiner-Hill, Prof B Collingwood, Sir Robert Armstrong-Jones, Dr H Crichton-Miller, Dr L Shore, and Prof M S Pembrey, F R S Tickets and further information may be had from Miss Olga Nethersole, The People's League of Health, 12, Stratford-place, London, W 1

PHARMACEUTICAL SOCIETY —An evening meeting of the Pharmaceutical Society of Great Britain will be held at the Society's house on Tuesday, Jan 11th, at 8 P M., when Mr. J H Franklin will read a paper entitled Notes on Preparations of the British Pharmacopœia, 1914 A discussion will follow. Medical friends of members and student-associates will be cordially welcomed

TUBERCULOSIS OF THE KIDNEY.

To the Editor of THE LANCET.

SIR,—I read with great interest the leading article on renal tuberculosis in your issue of Dec 25th, 1926 Whilst endorsing completely all that is said about the value of early nephrectomy in cases of unilateral infection, I do not agree with those referred to in the last paragraph, who believe that tuberculin "is useless in the management of tuberculous kidney." For several years I have always had my bilateral cases of renal tuberculosis treated by systematic injections of tuberculin in accordance with the usual practice at All Saints' Hospital I do not make extravagant claims for the treatment, as unfortunately there are many cases which do not respond to it, but a large number are materially benefited, as is seen by the increase in weight, the improvement in health, and a general amelioration of the distressing symptoms Several appear cured, and are living their ordinary lives free from symptoms All such, however, are warned to avoid exposure and fatigue and cannot, therefore, be regarded as strictly normal

I am, Sir, yours faithfully,
H L. ATTWATER, M Ch , F R C S

Wimpole street, W , Dec 28th, 1926

IRRADIATION AND CELL DIVISION

To the Editor of THE LANCET.

SIR,—A leading article in your issue of Oct 9th, 1926, referred to recent work by the late Dr T S P Strangeways and others on irradiation and cell division, in which it was shown that cells in certain stages of growth were apparently more easily influenced by radiation than cells which were undergoing mitosis This article drew a reply from Dr J C Mottram, one of the participants in the researches, to the effect that previous work by P Hertwig and by himself had shown the ova of ascaris when undergoing mitosis to be particularly susceptible to radiation I have rather gathered, since Dr Mottram's letter was published, that the inference most people would draw would be that the two positions were mutually irreconcilable, and my object in writing, even so late in the day, is to suggest that this is not so

It would be unfortunate at this stage in the radiological investigations which are being actively pursued at three research laboratories—viz , the Research Hospital, Cambridge, the Radium Institute, London, and the Middlesex Hospital—if their results should even appear to be at variance. Such, however, is not the case, and if any misconception has arisen in the matter it is, I think, to a large extent due to the use of terms not always strictly in the same sense The word mitosis occurs to me in this connexion Two sets of experiments lead to the following conclusions. (1) cells (ova of ascaris) in mitosis are more vulnerable to radiation than when in the resting stage, (2) cells (animal tumour cells) in a state of division suffer no immediate recognisable changes on exposure to large doses of beta radiation, though such doses prevent cells going into mitosis These conclusions may appear difficult to reconcile one with the other, but the difficulty arises partly, I think, from the use of the word mitosis to describe processes which presented themselves very differently to the people who did the experiments Strangeways's observation that cells going through the process of division continue to do so when given doses of X rays large enough to stop cells entering mitosis does not necessarily contradict the observation that cells in mitosis are more easily killed than when these cells are in a resting condition

This letter was written before the news reached me of the death of Dr Strangeways—a terrible loss to radiology A few weeks ago we were discussing the effects of radiation on living tissues, and he said to me, "One is just beginning to see daylight"

I am, Sir, yours faithfully,
SIDNEY RUSS

Cancer Research Laboratories, Middlesex Hospital, W ,
Dec 31st, 1926

ULTRA-VIOLET RADIATION.

To the Editor of THE LANCET.

SIR,—Dr Weinbren asks for greater detail of the technique adopted for the cases reported by us in your issue of Dec 11th, 1926 Over 200 exposures were made on these seven cases, and the space precluded us from entering into minutiæ as to the reasons for the varying types of lamps used and the varying length of individual exposure The reason why one type of lamp alone was not used throughout is that in our experience better results are obtained in general exposures by using both carbon and mercury vapour—the carbon, as is well known, being richer in the near ultra-violet rays and more penetrating than the mercury vapour, which gives a larger proportion of the far ultra-violet spectrum For local treatment the tungsten arc seems to give better results in irradiating cicatrised areas of any size, whereas the Kromayer, with its quartz applicators of various shapes and sizes, is more useful for smaller areas such as pustules and fistulæ

If Dr Weinbren will again read through our conclusions on Case 3, Hodgkin's disease, he will find that the bogy he has raised is of his own making This case was sent us by a consultant for treatment of the associated secondary anæmia, and our only comment was "The results in this case would suggest that the artificial, no less than the natural, sunlight has a therapeutic value in alleviating the symptoms and retarding the progress of Hodgkin's disease" A long way, surely, from claiming, as Dr Weinbren states we do, that ultra-violet light is a cure, and the only one, for this condition Dr Weinbren then gives his experience of ultra-violet light in two cases of Hodgkin's disease If we understand him correctly, the first patient was suffering from pulmonary tuberculosis, with tubercle bacilli in the sputum, as well as from Hodgkin's disease It is commonly accepted that active pulmonary tuberculosis is a contra-indication to ultra-violet treatment The second case received ultra-violet radiation for one month, stated that he felt better, and there was a decrease in the size of his spleen He then discharged himself from treatment, and after several months returned to hospital in a hopeless condition From this case we should feel diffident in drawing any conclusion

We agree with Dr Weinbren that the value of ultra-violet radiation in Hodgkin's disease remains to be proved

We are, Sir, yours faithfully,
A LISLE PUNCH
RUSSELL WILKINSON.

London, W 1, Dec 28th, 1926

LIPOID NEPHROSIS

To the Editor of THE LANCET.

SIR,—In their very interesting study on the above subject in your issue of Jan 1st Drs Bennett, Davies, and Dodds commence their summary as follows "Apart from albuminuria it is difficult to demonstrate any clinical evidence of renal disorder in the dropsical type of 'nephritis'" Surely the obvious retention of water in these cases must be accepted as evidence of renal disorder, whatever theory may be put forward to explain the occurrence of this retention, when there is no decided complicating cardiac insufficiency Probably the œdema connected with the retention of water, if it comes to involve the central nervous system, plays a chief part in producing one of the gravest complications—namely, so-called "uræmic" convulsions or "uræmic" eclampsia If what was formerly termed "parenchymatous nephritis" is now to be spoken of as "nephrosis," then, obviously, the convulsive attacks (now, owing to improved treatment, less commonly complicating the chronic dropsical cases than they formerly did) ought to be called "nephrotic" convulsions, unless the other foreign term, "pseudo-uræmic" convulsions, be preferred The theoretical explanation of such "nephrotic" convulsions has an important thera-

FRIDAY —5 30 P.M., CLINICAL. (Cases at 5 P M) Cases Dr Sibyl Eastwood (1) Muscular Atrophy Dr Saxby Willis (2) Case of Radicular Paresis of the Right Hand associated with Abnormal Bone Formation of the Seventh Cervical Vertebra and Sprengel's Shoulder Dr Saxby Willis and Mr W H Ogilvie (3) Case of Acromegaly of Traumatic Origin with Loose Bodies round an Enlarged Interphalangeal Joint Dr Bernard Myers (4) Case of Essential Thrombocytopenic Purpura Hæmorrhagica one year after Splenectomy Dr Milligan (5) Lymphatic Leukæmia with Ulceration of Tongue Mr Patey (6) Case for Diagnosis of Abdominal Condition Dr Parsons-Smith (7) Case of Heart Block. Dr Parkes Weber (8) Aleukæmic Lymphadenosis 8 30 P.M , OPHTHALMOLOGY (Cases at 8 P M) Cases Dr J W. Tudor-Thomas Foreign Body—Steel in Vitreous Other cases will be shown Paper Dr H Moreland McCrea Retinal Petechiasis a Clinical Entity of Auto-Intoxication.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W

MONDAY, Jan 10th —8 30 P.M , Presidential Address on Changes in the Clinical Aspects of Disease by Sir Humphry Rolleston, Bart , to be followed by a discussion

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W.

MONDAY, Jan 10th, to SATURDAY, Jan. 15th —COMBINED COURSE IN DISEASES OF CHILDREN at the Children's Clinic and the Royal Free Hospital. Afternoons and some mornings —PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N Intensive course in medicine, surgery, and the specialties Daily, 10 30 A.M to 5 30 P M , Clinical and laboratory methods, demonstrations operations &c Formal lectures at 4 30 P.M open to members of the Fellowship of Medicine —ROYAL NORTHERN HOSPITAL, Holloway-road, N Jan 11th, 3 15 P.M , Dr Punch The Modern Treatment of Pulmonary Tuberculosis Lecture free to members of the medical profession —BETHLEM ROYAL HOSPITAL, S E Tues and Sat , 11 A.M , Lecture-demonstrations on Diagnosis and Symptomatology of Mental Diseases and Psycho-Neurosis Further information from the Secretary of the Fellowship of Medicine

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, Jan 10th —10 A.M , Mr MacDonald Genito-Urinary Operations 11 A.M , Mr Tyrrell Gray Surgical Wards 2 P.M., Mr Donald Armour Operations

TUESDAY —10 A.M , Medical Registrar Clinical Methods 12 noon, Dr Burrell, Chest Cases 2 P M , Mr Sinclair Surgical Out-patients

WEDNESDAY —2 P M , Mr Tyrrell Gray Operations 2 P M , Dr Owen Medical Out-patients 4 P M., Dr Page Methods of Anæsthesia in Special Cases

THURSDAY —12 noon, Mr Simmonds Demonstration of Fractures 3 P.M Sir Henry Simson Gynæcological Wards 4 P M , Dr Snowden The Development of the Mind

FRIDAY —10 30 A.M Dr Dowling Skin Dept 11 A M , Dr Pritchard Modern Methods in Medicine 2 P.M , Mr Vlasto Throat Nose and Ear Dept

SATURDAY —9 30 A M , Dr Burnford Bacterial Therapy 10 A M , Mr Banks-Davis Operations on Throat Nose, and Ear

Daily, 10 A.M to 5 P M Operations, Medical, Surgical, and Special Out-patient Departments, Saturdays, 10 A.M to 1 P M

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, Leicester-square W C

THURSDAY, Jan 13th —9 P M , Dr H G Adamson The Erythemata

POST-GRADUATE HOSTEL Imperial Hotel Russell sq , W C

THURSDAY, Jan 13th —9 P.M., Mr E I Spriggs Diverticulitis

FRIDAY —9 P M , Prof D P D Wilkie Cholecystography Dinner 8 P M , 5s Light refreshments 10 P M

UNIVERSITY COLLEGE Gower street, W C

FRIDAY Jan 14th —5 P M , Dr P Stocks Vital Statistics

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL

FRIDAY, Jan 14th —4 P M Dr Dan McKenzie The Surgical Anatomy of the Temporal Bone With Epidiascope Demonstration

ST MARGARET'S HOSPITAL, POST-GRADUATE LECTURES, Acomb street Manchester

WEDNESDAY, Jan 12th —4 P M , Dr Arthur Giles Birth Control

Appointments.

CUNNINGHAM A J W , M D Camb D P H , has been appointed Medical Officer for the Sefton Rural District.

LLOYD, ERIC I M B , B Ch Camb , F R C.S. Eng Surgeon to the Hospital for Sick Children Great Ormond-street

Certifying Surgeons under the Factory and Workshop Acts BADGER C W M B Ch B Edin (Penicuik Co of Edinburgh) COOK J , M B Ch B Glasg (Earl Shilton District Leicester) [illegible]son G , M D F.R.C S Edin , D P H (Tiverton), BRUNTON, W D , M B , Ch B Edin (Richmond), BLAKEMORE, W L , L R C P Lond , M R C S (Cannock, Stafford) JACKSON, L N (Crediton), and McLEOD, N , M B , Ch B St And (St Andrews District, Fife)

Salford Royal Hospital SOUTHAM A H , M D , M Ch Oxf , F R.C S Eng , and McCREA, E D'A , M D , M Ch Dub , B.A O , D P H , F R C S Eng and Irel , Honorary Assistant Surgeons

Vacancies.

For further information refer to the advertisement columns

Adelaide University, South Australia —Elder Professorship of Anatomy £1100

Ayr, Glengall Hospital for Mental Diseases —Asst P £300

Birmingham, Queen's Hospital Medical School —Med Reg and Surg Reg Each £100

Brighton, Royal Sussex County Hospital —H S £150

City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E —H P At rate of £100

Clinical Research Association, Ltd , Watergate House, York Buildings, Adelphi, W C —Director of Laboratories £700

Dublin, Dr Steeven's Hospital —Anæsthetist 50 guineas

Evelina Hospital for Children, Southwark, S E —H P At rate of £120

Hospital for Consumption and Dis of Chest, Brompton, S W.—H P £50 for six months

Hospital for Sick Children, Great Ormond-street, W C —Res Med Supt Also Surg Reg Each £300 Also Phys to Out-patients

Hove Carr Burton Memorial Hospital, Sackville-road —Res M O £150

Huddersfield, Bradley Wood Sanatorium —Res. M.O £500

Lancashire Asylums Board —Deputy Med Supt £600

Leeds, City of —Asst M O H , &c £800

London Hospital, E —Asst P

Manchester, Ancoats Hospital —H P At rate of £100.

Manchester, St Mary's Hospitals, Whitworth-street —Two H S 's At rate of £50 each

Richmond Royal Hospital, Surrey —Hon Surg to Out-patients

Royal Chest Hospital, City-road, E C —Pathologist £300.

Royal National Orthopædic Hospital, 234, Great Portland-street W —Hon S , Hon P , and Hon. Dental Surg

Royal Northern Hospital, Holloway-road, N —Obstet Phys in Ven Dis Dept

Ryde Royal Isle of Wight County Hospital —Res H S £180

Sheffield Royal Infirmary —Ophth H S At rate of £80

Southwark Metropolitan Borough of —Asst. M O H £600

Stoke-on-Trent, North Staffordshire Royal Infirmary —Two H S 's Each £150

Sudan Government Medical Dept —Two M O 's £E 720

Sunderland County Borough —M O H £1000

Swansea Hospital —H S £150

University College Hospital, Gower-street, W C —Hon Phys for Children's Dept

Victoria Hospital for Children Tite-street, Chelsea, S W —H P. and H S Each at rate of £100

West London Hospital, Hammersmith, W —Hon S to Throat Nose and Ear Dept Also Hon Obstet Reg

Wimbledon Hospital —Res M O 100 guineas

York County Hospital —Asst Hon M O in Electro-Therapeutic Dept Also H S in Eye, Ear, and Throat Dept £150

Births, Marriages, and Deaths.

BIRTHS

ALDRIDGE —On Dec 28th, 1926, at " Ashington," Watford the wife of Dr F J Aldridge, of a son

CLARK.—On Dec 26th 1926 at Bayfield, Kent-road, Southsea, the wife of A Erskine Clark, of a son

ORAM —On Dec 26th, 1926 at Medical Officer's Quarters Wellington Barracks, S W , the wife of Capt A R. Oram, R A.M C , of a son

ORR.—On New Year's Day, the wife of Dr Vivian Bernard Orr Cadogan-gardens, S W , of a son.

MARRIAGES

ANGUS—ANGUS —On Dec 29th 1926 at Northumberland-square Presbyterian Church North Shields William Brodie Gurney Angus O B E M C , M D F R C S E , to Margaret younger daughter of Mr and Mrs. George Angus, of Tynemouth

TUCKER—COLMAN —On Jan 1st, Donald Leslie Tucker, M.R.C S L R.C.P , to Dorothea Colman daughter of the late Canon Colman and Mrs Colman Randolph-crescent, W

DEATHS.

MARTYN-CLARK —On Dec 25th 1926, at Treherbert, South Wales Robert Eric Noel Martyn-Clark, L R.C P. & S Edin aged 39

MURRAY —On Jan 1st Henry George Murray, L R C P Irel , of Carlisle road Hove aged 76

TEACHER —On Jan 1st, at Hollington Fareham, Hants Charles Clarke Teacher, M B C.M , formerly of Edinburgh and Craigend North Berwick aged 74

N B —*A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths*

MIDDLESEX HOSPITAL—Dr A F Voelcker will deliver an Emeritus Lecture in the large lecture theatre of the Medical School on Friday, Jan 11th, at 3 P M The *subject will be the Unscarred Abdomen*

ROYAL SOCIETY OF ARTS—A paper on the Forecasting and Control of Cholera Epidemics in India will be read before the Indian Section of the Royal Society of Arts by Sir Leonard Rogers, F R S, on Friday, Jan 28th, at 4 30 P M The chair will be taken by Sir Michael O'Dwyer, *formerly Lieutenant-Governor of the Punjab* Tickets may be had from the Secretary, Indian Section, Royal Society of Arts, John-street, Adelphi, London, W C 2

RONTGEN SOCIETY—A general meeting will be held in the British Institute of Radiology, 32, Welbeck-street, London, W, on Tuesday, Jan 11th, at 8 15 P M, when a paper on *Some Experiments on the Production of Rapid* Serial Skiagrams from the Screen Image by means of a Cinematograph Camera will be read by Dr Russell J Reynolds At 8 30 P M there will be a special general *meeting to consider the proposed amalgamation with the* British Institute of Radiology

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES—A course of ten lectures on the Philosophy of Social Life will be given by Mr C Delisle Burns, D Lit., at the University of London Club, 21, Gower-street, W C, on Tuesdays, at 6 P M., beginning on Jan 11th—A course of ten lectures on the World of Values will be given by Prof John S Mackenzie, at the Royal Anthropological Institute, 52, Upper Bedford-place, London, W C, on Thursdays, at 5 30 P M, beginning on Jan 13th Full particulars of these courses may be had from the Director of Studies, 88, Kingsway, London, W C 2

LECTURES ON THE CARE OF INFANTS—Under the auspices of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy a course of post-graduate lectures for health visitors, nurses, midwives, and others interested, will be given at the Infants *Hospital, Vincent-square, Westminster, on Mondays from* 6 30 to 7 30 P M, from Jan 3rd to March 7th The lecturers include Dr J S Fairbairn, Dr Muriel Radford Dr Eric Pritchard, Dr Donald Paterson, Dr W E Robinson, Mr Vincent Denne, Dr H C Cameron, and Mr A H Todd A course of advanced lectures on the same subject, for creche nurses and probationers, will be given by Dr Victoria Bennett, at Carnegie House, 117, Piccadilly, London, W, on Thursdays, from 7 30 to 8 30 P M, from Jan 27th to March 31st Particulars of both courses may be had from the Secretary of the Association, at Carnegie House

MEDICO-LEGAL SOCIETY—This Society has accepted the invitation of the Obstetrical Section of the Royal Society of Medicine to hold a joint meeting at 8 P M on Friday, Jan 21st, at the Hall of the Royal Society of Medicine, 1, Wimpole-street, London, W 1 The subject for debate will be the Ethical, Legal, and Medical Aspects of Abortion, and the speakers will include Dr J S Fairbairn, Lord Riddell, Dr T W Eden, and Sir Travers Humphreys Lord Justice Atkin, the President of the Medico-Legal Society, has consented to take the chair and to sum up the debate at its conclusion Members of the Medico-Legal Society desirous of taking part in the discussion are asked to send in their names to either of the hon secretaries not later than Jan 17th—An ordinary meeting of the society will be held at 11, Chandos-street, Cavendish-square, London, W 1, on Thursday, Jan 27th, at 8 30 P M, when a paper will be read by Dr Halliday Sutherland on a Case Concerning Survival in an Aeroplane Crash A discussion will follow Members may introduce guests on production of a member's *private card*

WELSH NATIONAL MEDICAL SCHOOL—A special meeting of the Court of the University of Wales will be held on Jan 14th to consider the future status and government of this school A draft charter has been prepared by the University Council which provides for its establishment as an independent school in the university, as recommended by a Royal Commission in 1916 At a previous meeting as long ago as October, 1925 (see THE LANCET, 1925, ii, 925), the Court agreed in principle to this scheme, which has, however, been vigorously opposed by the Council of the University College of South Wales and Monmouthshire, to which the Welsh National Medical School has hitherto been attached The chief point of difference appears now to concern the departments of anatomy and physiology The University Council recommend their inclusion in the School of Medicine, but are willing to consider submitting the matter to a *committee of experts*, but the University College of South Wales and Monmouthshire are not prepared to agree to this and have prepared an alternative draft charter providing for their exclusion The University Court, which meets next Friday at Shrewsbury, will decide on Jan. 14th which of these draft charters is to be submitted to the Privy Council *for consideration*

DUBLIN (83) GENERAL HOSPITAL UNIT—The annual dinner of the Dublin (83) General Hospital Unit was held on Jan 1st in the Royal College of Surgeons, under the *presidency of Colonel Sir William Taylor*, organiser of the unit Of the original 30 members, 25 survive, and of these 17 were this year able to attend the dinner The only guests were Colonel A Fullerton, President of the Royal College of Surgeons in Ireland, who was consulting surgeon to the army in the area in which the unit served in France in 1917–18, and Mr A. Miller, Registrar of the College. The chairman spoke with regret of the death of one member, Lieut-Colonel G Jameson Johnston, since the last annual dinner, and of one who had been a guest at several dinners, General R H Sawyer, who had been the deputy director of medical services under whom the unit served

PRIZES FOR INFORMATION ABOUT CANCER—Mr William Lawrence Saunders, of New York, has offered a prize of $50,000 "to any person or group of persons who may discover what human cancer is and how it can positively be *prevented*," and a similar sum "to any person or group of persons who may discover an absolute cure for human cancer" The offer is to stand open for three years and may then be renewed Mr Saunders thinks that "through the lure of a reward this serious problem might be solved through the genius of a lay mind, by chemists, or through unknown *and unorganised medical sources*" *The decision* upon which the awards will be made is to be reached by the American Society for the Control of Cancer and approved by the American Medical Association and the American College of Surgeons

THE LATE DR ALFRED SCOTT—At the age of 71 Dr Alfred Scott died at Crowborough on Dec 22nd Born at Brighton, he was the fourth son of the late Dr S L Scott, who practised in the town, and was educated at Bradfield College He studied medicine at Guy's Hospital and became *M R C S Eng in 1879 and L R C P Lond in 1882* A few years later he settled at Brighton and held a number of appointments in the neighbourhood besides having an extensive private practice He was medical attendant at Brighton College during the whole of his practising life which lasted nearly 40 years He went to live at Crowborough on his retirement four years ago Dr Scott leaves a widow and four children of whom two, Dr Evelyn Scott and Dr P D Scott, are members of the medical profession

Medical Diary.

SOCIETIES

ROYAL SOCIETY, Burlington House Piccadilly, W

THURSDAY, Jan 13th—4 30 P M *The following papers will be read* F W R Brambell, A S Parkes, and Una Fielding Changes in the Ovary of the Mouse following Exposure to X Rays Parts I and II (Communicated by Prof J P Hill) A S Parkes On the Occurrence of the Œstrous Cycle after X Ray Sterilisation Part II Irradiation at and before Birth (Communicated by Prof J P Hill) R M. Sargent Recovery from Vigorous Exercise of Short Duration. (Communicated by Prof A V Hill) F A Pickworth Basal Metabolism as Determined by the Respiratory Exchange (Communicated by Dr J S Haldane) M Dixon On the Mechanism of Oxidation Reduction Potential (Communicated by Sir Frederick Hopkins) R G Canti and M Donaldson The Effect of Radium on Mitosis in vitro (Communicated by Sir Frederick Andrewes) R J Ludford and W Cramer Secretion and the Golgi Apparatus of Islets of Langerhans. (Communicated by Dr J A Murray) S Dickinson *Experiments on the Physiology and Genetics of the* Smut Fungi Hyphal Fusion (Communicated by Sir John Russell) Y Azuma Effects of C and K Ions and Ultra Violet Rays upon Involuntary Muscle. Effects of Ultra-Violet Rays upon Skeletal Muscles. (Communicated by Dr L Hill)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W

TUESDAY, Jan 11th—4 P M, PSYCHIATRY Clinical Meeting at the Maudsley Hospital, Denmark Hill, S E 5 Tea will be provided by the kindness of the Medical Superintendent, Dr E Mapother

WEDNESDAY—5 30 P M, SURGERY SUBSECTION OF PROCTOLOGY (Cases at 5 P M) Extra *Meeting* for a series of short papers limited to ten minutes each *Papers* Dr E Ulysses Williams and Mr Lionel F C *Norbury Normal* Variability of the Action of Pituitrin on the Contractile Power of the *Cæcum and* Colon. Mr Lionel E C Norbury and Mr C N Morgan The Value of Lipiodol in Determining the Extent of *Fistulæ in-Ano* Mr Rodney Maingot Gummatous *Colitis (with report of a case)* Dr Cuthbert Dukes Laboratory Tests for the Diagnosis of Cancer of the Rectum and Colon Mr W B Gabriel (1) Volvulus of the Pelvic Colon and Blind Cæcostomy, (2) Skin Grafts for Fistulæ

THURSDAY—8 30 P M, NEUROLOGY Discussion on Epilepsy, to be opened by Dr Aldren Turner

FRIDAY—5 30 P.M., CLINICAL. (Cases at 5 P M) Cases Dr. Sibyl Eastwood. (1) Muscular Atrophy Dr Saxby Willis (2) Case of Radicular Paresis of the Right Hand associated with Abnormal Bone Formation of the Seventh Cervical Vertebra and Sprengel's Shoulder Dr Saxby Willis and Mr W. H Ogilvie (3) Case of Acromegaly of Traumatic Origin with Loose Bodies round an Enlarged Interphalangeal Joint Dr. Bernard Myers (4) Case of Essential Thrombocytopenic Purpura Hæmorrhagica one year after Splenectomy Dr Milligan · (5) Lymphatic Leukæmia with Ulceration of Tongue Mr Patey (6) Case for Diagnosis of Abdominal Condition Dr Parsons-Smith (7) Case of Heart Block. Dr Parkes Weber. (8) Aleukæmic Lymphadenosis 8.30 P.M., OPHTHALMOLOGY (Cases at 8 P.M) Cases Dr J W. Tudor-Thomas Foreign Body—Steel in Vitreous Other cases will be shown Paper Dr. H Moreland McCrea Retinal Petechiasis a Clinical Entity of Auto-Intoxication

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square W

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LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

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WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Jan 10th—10 A M, Mr MacDonald Genito-Urinary Operations 11 A.M Mr Tyrrell Gray Surgical Wards 2 P.M., Mr Donald Armour Operations.

TUESDAY—10 A.M., Medical Registrar. Clinical Methods. 12 noon, Dr. Burrell Chest Cases. 2 P.M, Mr Sinclair. Surgical Out-patients

WEDNESDAY—2 P.M., Mr Tyrrell Gray Operations. 2 P.M., Dr Owen Medical Out-patients 4 P.M., Dr Page Methods of Anæsthesia in Special Cases

THURSDAY—12 noon, Mr Simmonds Demonstration of Fractures 3 P.M. Sir Henry Simson Gynæcological Wards 4 P.M, Dr Snowden The Development of the Mind.

FRIDAY—10.30 A.M, Dr Dowling Skin Dept. 11 A M., Dr. Pritchard Modern Methods in Medicine 2 P.M., Mr Vlasto Throat, Nose and Ear Dept.

SATURDAY—9 30 A.M. Dr Burnford Bacterial Therapy 10 A.M, Mr Banks Davis. Operations on Throat, Nose and Ear

Daily, 10 A.M. to 5 P.M. Operations Medical, Surgical, and Special Out-patient Departments, Saturdays, 10 A.M to 1 P.M.

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49 Leicester-square, W C

THURSDAY, Jan 13th—9 P.M, Dr H G Adamson. The Erythemata

POST-GRADUATE HOSTEL Imperial Hotel, Russell-sq, W C

THURSDAY Jan 13th—9 P.M., Mr E I Spriggs Diverticulitis

FRIDAY—9 P M., Prof. D P D Wilkie. Cholecystography Dinner 8 P.M., 5s Light refreshments 10 P M

UNIVERSITY COLLEGE, Gower street, W C

FRIDAY, Jan 14th—5 P.M, Dr P. Stocks · Vital Statistics

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL.

FRIDAY, Jan 14th—4 P.M, Dr Dan McKenzie. The Surgical Anatomy of the Temporal Bone With Epidiascope Demonstration.

ST MARGARET'S HOSPITAL, POST-GRADUATE LECTURES, Acomb-street, Manchester

WEDNESDAY, Jan. 12th—4 P M., Dr Arthur Giles · Birth Control.

Appointments.

CUNNINGHAM A J. W, M.D Camb D.P H, has been appointed Medical Officer for the Sefton Rural District.

LLOYD, ERIC L. M.B, B Ch. Camb, F R.C.S. Eng, Surgeon to the Hospital for Sick Children, Great Ormond-street.

Certifying Surgeons under the Factory and Workshop Acts BADGER, C W, M B Ch B Edin (Penicuik, Co of Edinburgh), COOK, J, M B, Ch B Glasg (Earl Shilton District Leicester), NICHOLSON G, M.D, F R.C S Edin., D P H (Tiverton) BRUNTON, W D, M B, Ch B Edin (Richmond), BLAKEMORE W L, L R C P Lond, M R C S (Cannock, Stafford) JACKSON, L N (Crediton), and McLEOD, N, M B, Ch B St And (St Andrews District, Fife)

Salford Royal Hospital SOUTHAM A H, M D M Ch Oxf, F R.C S Eng and McCREA, E D A, M D, M Ch Dub B A O, D.P H, F R C S Eng and Irel, Honorary Assistant Surgeons

Vacancies.

For further information refer to the advertisement columns

Adelaide University, South Australia—Elder Professorship of Anatomy £1100

Ayr, Glengall Hospital for Mental Diseases—Asst P £300

Birmingham, Queen's Hospital Medical School—Med Reg and Surg Reg Each £100

Brighton Royal Sussex County Hospital—H.S £150

City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E—H P At rate of £100

Clinical Research Association, Ltd Watergate House, York Buildings Adelphi W C—Director of Laboratories £700

Dublin Dr Steevens's Hospital—Anæsthetist 50 guineas

Evelina Hospital for Children, Southwark, S E—H P At rate of £120

Hospital for Consumption and Dis of Chest, Brompton, S W.—H P £50 for six months

Hospital for Sick Children, Great Ormond-street W C—Res Med Supt Also Surg Reg Each £300 Also Phys to Out patients

Hove Carr Burton Memorial Hospital, Sackville-road—Res M O £150

Huddersfield, Bradley Wood Sanatorium—Res. M O £500

Lancashire Asylums Board—Deputy Med Supt £600

Leeds, City of—Asst M O H, &c £500

London Hospital E—Asst P

Manchester, Ancoats Hospital—H P At rate of £100.

Manchester St Mary's Hospitals, Whitworth-street—Two H S's At rate of £50 each

Richmond Royal Hospital, Surrey—Hon Surg to Out patients

Royal Chest Hospital City-road, E C.—Pathologist £300

Royal National Orthopædic Hospital, 234, Great Portland street, W—Hon S, Hon P and Hon Dental Surg

Royal Northern Hospital, Holloway-road, N—Obstet Phys. in Ven Dis Dept

Ryde Royal Isle of Wight County Hospital—Res H S £180

Sheffield Royal Infirmary—Ophth H.S At rate of £80

Southwark Metropolitan Borough of—Asst. M O H £600

Stoke-on-Trent, North Staffordshire Royal Infirmary—Two H S's Each £150

Sudan Government Medical Dept—Two M O's £E 720

Sunderland County Borough—M O H £1000.

Swansea Hospital—H S £150

University College Hospital, Gower-street, W C—Hon Phys for Children's Dept

Victoria Hospital for Children Tite street, Chelsea, S W—H P. and H S Each at rate of £100

West London Hospital, Hammersmith, W—Hon S to Throat Nose, and Ear Dept Also Hon. Obstet Reg

Wimbledon Hospital—Res M O 100 guineas

York County Hospital—Asst Hon. M.O in Electro Therapeutic Dept. Also H S in Eye, Ear, and Throat Dept £150

Births, Marriages, and Deaths.

BIRTHS

ALDRIDGE—On Dec 28th 1926, at "Ashington," Watford, the wife of Dr F J Aldridge, of a son.

CLARK.—On Dec 26th 1926 at Bayfield, Kent-road, Southsea, the wife of A. Erskine Clark, of a son.

ORAM.—On Dec 26th, 1926 at Medical Officer's Quarters, Wellington Barracks, S W, the wife of Capt A. R. Oram, R.A.M C, of a son.

ORR—On New Year's Day, the wife of Dr Vivian Bernard Orr, Cadogan-gardens, S W, of a son.

MARRIAGES

ANGUS—ANGUS—On Dec. 29th, 1926 at Northumberland-square Presbyterian Church, North Shields, William Brodie Gurney Angus O B E M.C, M.D., F R.C.S.E to Margaret younger daughter of Mr and Mrs. George Angus, of Tynemouth.

TUCKER—COLMAN.—On Jan. 1st, Donald Leslie Tucker, M.R.C S L R.C P, to Dorothea Colman, daughter of the late Canon Colman and Mrs Colman, Randolph-crescent, W.

DEATHS.

MARTYN-CLARK.—On Dec 25th, 1926, at Treherbert, South Wales Robert Eric Noel Martyn-Clark, L R.C P. & S Edin. aged 39.

MURRAY—On Jan. 1st, Henry George Murray, L.R.C P. Irel., of Carlisle-road, Hove, aged 76

TEACHER.—On Jan. 1st, at Hollington, Fareham, Hants, Charles Clarke Teacher, M.B C.M., formerly of Edinburgh and Craigend, North Berwick, aged 74

N.B.—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Comments, and Abstracts.

ON THE DANGER OF TREATING INJURIES TO BONES AND JOINTS WITHOUT AN X RAY EXAMINATION

BY W. EDMUND JONES, M.R.C.S. ENG.,
RADIOLOGIST TO THE LEAMINGTON HOSPITAL AND THE STRATFORD-UPON-AVON HOSPITAL

IN the course of radiological practice it is very common to meet cases of injury in which an X ray examination has not been made until long after the accident. The examination is often made only when it is obvious that some unsuspected condition is present; as shown in the radiograph, this may be an unreduced dislocation, a fracture, or a fracture united in poor position. Earlier recognition of the condition would in many cases result in more efficient treatment, and would avoid consequences unpleasant to the medical attendant.

The teaching to-day is that all cases of fracture or suspected fracture, or injury to a joint should be X rayed as soon as possible after the accident. The frequent omission of this important aid to diagnosis has led one of the medical protection societies to issue the following recommendation to its members:—

> "The treatment of fractured bones gives rise to many claims for damages every year, and members are strongly advised to insist as early as possible upon an X ray examination in all cases of injury where a fracture or dislocation has been or may have been sustained. When this is refused or omitted for any reason, a member should provide himself with clear evidence—preferably in writing—to prove that he was not responsible for this neglect or omission."

Treating an injury without knowing its exact nature is like navigating a ship without a compass—a very hazardous undertaking; it means running an unjustifiable risk, and if an unsuspected lesion is found later, or if the end-result is poor, the medical attendant is placed in a very disadvantageous position. I am fully alive to the difference between treating a patient in hospital and in private practice, possibly far removed from all those aids which help so much in the diagnosis and treatment. At the same time the standard of skill expected from the practitioner with no pretentions to special knowledge is getting higher and higher, and in view of the increasing number of cases in which malpraxis is alleged it is of vital importance not to overlook the aid to be obtained from an X ray examination.

Neglect of Radiography.

What are the causes of the continual disregard of this sound principle? The following are some of them: (1) refusal of the patient to consent, usually on the grounds of expense; (2) lack of reasonable facilities; (3) failure of the medical attendant to recognise that a radiograph is likely to be of assistance.

That expense is a real deterrent in some cases is beyond doubt; at the same time the responsibility of deciding against must lie with the patient. The doctor sometimes says that he did not wish to put the patient to the extra expense, but he gets no thanks for this if the end-result is poor. The doctor must make the position perfectly clear to his patient; the use of X rays, if advised, must be insisted upon, and should the patient refuse, for any reason, written evidence of his refusal should be obtained for the protection of the doctor, if he decides to undertake treatment of the case.

There are so many places now which have an X ray apparatus that the excuse that there are no reasonable facilities hardly holds good if the patient is able to be moved. If, however, he cannot be moved, it is usually possible to get a photograph with a portable apparatus; this is of necessity a more expensive proceeding, and in cases of special difficulty the results are not as good as with the more powerful fixed plants.

What are the general conditions which should guide the practitioner in deciding if a case can be moved or not? Patients with fracture of the skull, spine, pelvis, hip, or femur ought not to be moved; but if there is considerable doubt as to the presence of a fracture and the general condition of the patient is good, all these cases may be moved for a diagnostic photograph, except those in which there is injury to the head. Head injuries travel badly, and treatment should rather be based on accurate interpretation of symptoms than on knowledge of the presence or absence of a fracture.

Failure to recognise that a radiograph is likely to be of assistance arises from belief that the injury is trivial or from reliance on clinical signs alone. The following are some of the common fractures shown by radiography in apparently trivial injuries, and frequently overlooked where no X ray examination is made: fractured fingers (especially common in school-boys); fracture of the fifth metatarsal; fracture of the carpal scaphoid, which occurs in 1 per cent. of all wrist injuries; fracture of the base of the metacarpal of the thumb; and impacted Colles's fracture. It is easy to overlook greenstick fractures of many bones, especially of the clavicle in young children. I have had a case diagnosed as sarcoma, which on X ray examination proved to be an overlooked fracture with much callus formation. In sprain or insertion fracture, caused by the sudden contraction of a tendon or muscle tearing away from its insertion a fragment of bone, the fragment cannot always be seen at the time of the injury, though it may be recognised later as a result of the periostitis caused. Examples of this are trigger finger, and the so-called sprained ankle. Compression fractures of the body of a vertebra may also be easily overlooked. Fracture of the pelvis not infrequently results from a fall in the hunting field and in motor accidents, the lesser degree of these fractures easily passing unobserved; generally speaking, however, if they produce no symptoms, little harm is done by the diagnosis not having been made, and this is one of those cases in which an X ray should be taken more for the protection of the doctor than for the good of the patient.

One of the commonest fractures overlooked is intracapsular fracture of the femur, and this is also one which has given rise to much litigation. The signs at the time of the accident are often very slight, the pain is not severe, a thorough examination is not always made, and the condition is treated as a sprain or bruise. In a few weeks, when absorption of the neck has taken place, there is shortening of the limb, lameness and deformity, and the patient wonders how it was possible for the fracture to have been unrecognised. If an X ray examination is now made the fracture and displacement are clearly shown. I have seen such a case in which a very careful clinical examination at the time of the accident failed to show any sign of fracture and no X ray examination was made. Later the patient developed the usual signs and radiography showed the fracture with considerable absorption. In this case it was argued that the doctor had used such skill as could reasonably be expected from a general practitioner, but I am not at all sure that this view would always be upheld.

Fractures near Joints.

To rely on a diagnosis made without an X ray examination is, I consider, most unwise, and it should never be done in any fracture near or involving a joint. This particularly applies to fractures in the region of the elbow joint. I have seen a case, diagnosed as dislocation and thought to have been reduced, where a fracture of the lower end of the humerus was found united in so bad a position that operative interference was necessary. The shoulder is another difficult joint in which to make an accurate diagnosis. What is thought to be a dislocation may prove to be an impacted fracture with dislocation, and in the attempted reduction the impaction may be broken down, leaving the head of the bone in the axilla.

A certain number of fractures are overlooked—in these days of motor accidents, which are a frequent cause of multiple injuries—because the doctor's attention is attracted more particularly to some severe injury, and the less obvious fracture is overlooked. The same thing may happen with unconscious patients. The possibility of a fracture being due to a pathological condition of the bone should always be kept in mind where fracture occurs as a result of slight violence, and an X ray examination in these cases has great value in diagnosis and also in prognosis.

The following injuries are frequently very difficult to demonstrate—a fact which should be borne in mind before putting a patient to inconvenience in travelling, especially as a negative diagnosis is not of much value: fractures of the ribs without displacement, fractures of the sternum without displacement, fractures of the base of the skull, and injuries to joints in infants.

Radiographs help in the treatment of fractures and other injuries by showing the position of the fragments after reduction and later by showing the condition of the ends of the bones and the amount of callus formed. It is, however, essential that the radiographs be interpreted by a competent person; there are many pitfalls for the inexperienced, and to guard against them is the special province of the radiologist. One point is perhaps worth mentioning—an opinion after seeing a film giving one view only should never be expressed upon the position of a fracture.

When should Injuries be Radiographed?

It is usually advised that an X ray examination should be made as soon as possible after the injury. I do not think that this goes far enough. An immediate examination will give an accurate diagnosis, but this is only the starting-point; it defines the practitioner's responsibilities, and leaves no excuse for not applying the appropriate treatment. I suggest that not only should cases be radiographed as soon as possible after injury, but if there is a fracture or dislocation they should be radiographed again after reduction This is the ideal method, but it cannot always be carried out, in some cases, moreover, it is not necessary to have both examinations For example, the great majority of Colles's fractures can be accurately diagnosed without an X ray photograph, so that the diagnostic film could be dispensed with and one after reduction only be taken However certain the diagnosis may seem, however certain it may appear that the dislocation has been properly reduced, and however satisfactory may be the position of a limb after a fracture, it is desirable for the doctor to have a radiograph for his own protection In some cases of special difficulty films may have to be taken repeatedly

During the process of healing, radiological examination may be of considerable assistance All cases which do not appear to be making the expected progress should be radiographed, so that it may be seen how much callus has been formed, it may be deficient or excessive, or there may be non-union Excessive formation of callus is often seen in injuries in the region of the elbow in children, the periosteum is readily stripped off and much callus is formed, sometimes preventing movement of the joint If, after an injury, it is found that a joint has got a limited range of movement, a radiograph should be taken before subjecting the patient to painful manipulations, it is necessary to make quite certain that there is no mechanical cause preventing movement

A common event after an injury to a joint is the occurrence of arthritis, and a note of the presence or absence of this condition immediately after the accident may be of great value should the case later involve litigation

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SLEEPY SICKNESS IN CHINA.

Dr M O Pfister, of Hong-Kong, formerly acting head of the Department of Neurology at the Peking Union Medical College, has followed up his study of epidemic encephalitis in Europe (*China Medical Journal*, March, 1924) with a résumé of 100 cases which came under his observation while in Peking (Caduceus, August, 1926) He finds the clinical picture of encephalitis in China not essentially different from that in other countries, and the disease not less common there than elsewhere No trustworthy observations are available for the interior of China, but Dr Pfister has reason to believe that the disease has spread all over the country much as it has done in Europe Since 1921 an outbreak has occurred every summer among the foreigners at Peitaiho In Northern China most of the new cases are seen during the dry season from January to March, and 35 per cent. of them belong to the Parkinsonian type In five patients attacks of compulsory fixation of the eyeballs were observed, and Dr Pfister remarks how closely members of the white and yellow races come to resemble each other, and how racial differences vanish from the mask-like face with its loss of expression and its doll-like appearance One difference he does note—namely, the absence of the so-called "ointment" or greasy face in the Chinese patients, owing to the fact that the facial skin of the yellow race is naturally of a somewhat shiny character, while the yellowish tint renders such differences less easily distinguishable than in the white race The first epidemic of encephalitis in China occurred in the spring of 1919, when the disease was at its severest, its course since having become milder. It was probably introduced into China by way of India through the seaports of the southern and eastern coast In Japan, Dr Pfister adds, the disease appeared almost at the same time as in China, and probably along the same lines of transmission

A SUBJECT INDEX FOR THE GENERAL READER

The Subject Index to Periodicals was first issued by the Library Association in 1915 to take the place of Poole's Index, the discontinuance of which had been found to limit the practical utility of public libraries The latest instalment of the Index deals with science and technology (Class-list K) in the year 1922 This instalment comprises 6200 entries obtained from the examination of 300 periodicals, and is adapted for the use of the general reader who wishes to keep in touch with the outstanding publications of the year on a particular subject, rather than for the use of the specialist who requires to know all that has been written, important or unimportant, on his own specialty The Index mentions, for instance, 15 articles dealing broadly with the subject of heredity, with a cross-reference to other headings such as breeding, eugenics, evolution, Karyokinesis, sex, and variation Under cancer there are five items, with a cross-reference to radiotherapy with three items, and a further cross-reference to radium therapeutic use The format is large (9¾ × 12 in.) and the price 1 guinea, the agents for the Library Association being Messrs Grafton and Co, 51, Great Russell-street, London, W C. 1

MENTAL CAPACITY AND DYING DECLARATIONS

In his article last week on cases of suspected poisoning, Dr Roche Lynch remarked that it may become the duty of the medical man to take a dying declaration A correspondent points out in this connexion the doubts which may arise as to the mental capacity of the dying person, but he does not set out his difficulties in detail The giving of evidence as to the mental condition of a patient is often admittedly a matter of considerable difficulty The practitioner in the course of attendance may be satisfied that his patient's own welfare does not demand the help of a consultant, and yet if any situation is likely to arise in which the patient's capacity for managing his affairs or making a will may be questioned, expert advice should certainly be sought In some cases the patient will resent the suggestion that this should be done, and a difficult problem in the conduct of practice arises It is quite true that if any anticipated legal intervention should take place, the expert advice may not be conclusive, for experts are apt to differ about mental capacity and the question of responsibility lends itself to legal argument But the practitioner is acting in the cause of justice and is securing the best position for his patient if he invites him to take a consultant's view as to the circumstances In respect of dying declarations to be used as evidence in a court of law, these are only admitted if they have been made in accordance with the precautions laid down If the responsibility for preparing the dying declaration of a patient should fall upon the medical man, he should not forget that the patient making the declaration has to be (*a*) fully convinced that he is about to die, and (*b*) is in a mental condition to make his statements valid The declaration taken down in the exact words of the dying man should be signed by the practitioner in the presence of one or more witnesses, only something very urgent or peculiar about the circumstances can excuse the witness to his signature The document should be dated, and it might be a point of legal moment that the hour as well as the day should be added

A MESOPOTAMIAN SHEEP.

The diverse requirements of the pathologist are often unintelligible to his colleagues and they are still less clear to the layman Not long ago the medical officer attached to a military unit serving in Irak indented for a sheep which he wanted as a source of fresh blood in his laboratory The animal was duly received and was attached to the equipment, small specimens of blood being from time to time removed from a vein as they were needed After a few months a peremptory communication was received from headquarters at Bagdad stating that no entry could be traced with reference to the return of the sheep's skin after the animal had been used, the skin being required, according to the regulations, for other purposes As both sheep and skin were still being employed in the laboratory a formal reply was sent to the effect that at present the sheep was itself using the skin, and, in the absence of orders to the contrary, it was proposed that for the present it should be permitted to retain it Not long ago, however, a further communication came from headquarters, manifesting renewed anxiety that His Majesty's property should still be unaccounted for on the appropriate returns and asking for further reassurance about its condition. The medical officer accordingly sent the following report: "I have to state that the sheep is still in active life and service Any rumours to the contrary which may have reached Bagdad are without foundation"

THE YOUNGEST MEDICAL STUDENT?

To the Editor of The Lancet

Sir,—In an address to the Child Study Society, which you summarised at the time (The Lancet, 1925, ii, 1101), Mr Macleod Yearsley drew attention to the need for collecting data about *normal* children—their vocabulary and mental development. The following may interest your readers My baby boy is 2 years and 9 months old, this week he was going to the seaside, which he calls "swishy," and watched the packing with great interest and excitement In the midst of it the hotel manager rang up to tell me that he had 20 cases of influenza in the house and urged me not to come To break the disappointment I explained to the baby that we could not go because the people in the hotel had got "bad germs" in their throats, which would get into his He repeated it all after me very slowly and then said, "Paint people's throats with d'iodine so people get better quick, when people better I go 'swishy' Not go now; I doesn't want bad germs in throat"

His medical diagnosis that the people needed their throats painted with iodine is surely remarkable as no mention was made of it by me and it is some time since his own throat was painted Do your readers know of a younger medical student?

I am, Sir, yours faithfully,

Leatherhead Surrey, Jan 1st, 1927. Marie C Stopes

DIET OF CHILDREN UNDER SCHOOL AGE

THE National Association for the Prevention of Infant Mortality has been investigating the diet of children, and after studying the various dietaries given by a large number of Poor-law authorities in this country has drawn up what is to be regarded as the basis of a suitable dietary for children between the ages of 1 and 5 years

The following are essential (1) A minimum of 1 pint of milk daily This should be boiled or pasteurised, unless Certified or Grade A (tuberculin tested) milk is supplied (2) A minimum of 2–4 oz of butter a week A daily dose of cod-liver oil may replace this or permit some reduction (3) A minimum of two eggs a week (4) In the case of young children the juice of orange, tomato, grapes, or lemon (not lime-juice), and for older children an apple, orange, tomato, some green salad or lemon-juice daily (5) Meat or fish—a minimum of 2–4 oz a day, unless an egg is being given (6) Drinking water should be freely available for every child

The amounts of food suggested above are only to be regarded as average quantities, and the needs of individual children must be a matter of observation The following are additional recommendations of the Association Bread should have the maximum amount of crust—"Standard" bread may be given at times Oatmeal may be included in the diet if the daily minimum of a pint of milk is increased Potatoes after being well scrubbed should be cooked and served in their skins Children under 5 should have either milk (see above) or cocoa made with milk, they should not be allowed tea or coffee Margarine may be given as food, but *not* as a substitute for the minimum ration of butter or cod-liver oil The daily dietary should contain a ration of cooked vegetable in season and of hard food requiring the exercise of the jaws The interval between meals should not be less than four hours and not longer than five Nothing but water should be given during the intervals

THE P B L A A

THE report of the Pathological and Bacteriological Laboratory Assistants Association for 1925–26 has lately reached us It records very satisfactory progress Founded in 1912, the Association now has a membership of over 400 including 101 members who have obtained certificates of proficiency in one or other branch of laboratory technique, 171 ordinary members, and 118 junior members The members in Britain are organised in four branches who make their own arrangements for meetings The London division is naturally the largest and most active During the winter under review they held 16 meetings, partly to attend lectures and demonstrations in various laboratories by qualified experts and partly to hold classes in which the senior members give instruction to the juniors in practical work, subsidiary classes for small groups in, e g, glass-blowing, are also arranged The examinations for certificates have been held as usual under an Examining Council consisting of Prof H R Dean, Prof A E Boycott, and Dr J A Murray, with two representatives of the Association We note that at the last examination 17 candidates were successful out of 38, which is evidence that certificates are given only to well-qualified assistants There is no doubt that the Association has done excellent work in raising the standard and status of laboratory assistants and if it continues to give first place amongst its activities to its educational programme it will go on making good progress to the mutual advantage of the assistants and their employers A five day conference will be held in Cambridge in August next Mr H P Hudson has resigned the general secretaryship, and those who desire to know more of the Association or to make use of its employment bureau should communicate with Mr H Gooding, 10 Holbeck-grove, Victoria Park, Manchester, who succeeds him

HEALTH CONDITIONS IN GIBRALTAR

Mr C W J Orr, Colonial Secretary, in his report for 1925, states that the total estimated civil population of Gibraltar at the close of the year was 17,288, of whom 16,127 were fixed residents These figures represent the population between sunset and sunrise, to calculate the daily population it would be necessary to add some 5000 aliens and 1500 British subjects resident in the neighbouring Spanish town of La Linea, who come into Gibraltar daily The number of births during the year was 372, of which 179 were boys and 193 girls The birth-rate per 1000 was 23 00 The births refer to the fixed population only, as under the Aliens Order in Council no alien may give birth in the colony 256 deaths were registered and the crude death-rate was 14 80 per 1000 Infantile mortality was 83 per 1000, which is the lowest since 1913, and deaths from pulmonary tuberculosis 1 7 per 1000 The number of deaths from cancer was 17, a decrease of 10 on the total for 1924 The year was a very satisfactory one as regards general health There was no disease in epidemic form The sanitary work of the colony is carried out by the city council, who have also charge of the roads, lighting, and hygienic measures in dwellings and the provision of water supply The tourist traffic has developed considerably, owing largely to a system of cheap summer fares instituted by the P and O Steamship Company Gibraltar forms an ideal centre for visits to Morocco and the south of Spain, and passengers from London can now tranship here and reach Fez within a few days of leaving England, or can alternatively visit Seville and Granada and other places of interest in Spain during the space of a short fortnight's holiday The general climate of Gibraltar is mild and temperate, though somewhat hot and oppressive during the months of July and August The meteorological record for 1925 shows 69 1° F as the mean maximum temperature, the highest shade temperature being 89° on August 10th and 17th, and the lowest 41° on March 1st, 2nd, and 23rd The rainy season spreads over the period from September to May The annual rainfall is 35 inches, but in 1925 39 21 inches were registered, of which 19 72 inches fell in November

DONATIONS AND BEQUESTS

Sir Adolph Tuck left, among other bequests, £3000 to his son Desmond, in the hope (without creating a trust in the matter) that he would distribute the money amongst charitable institutions and poor but deserving individuals as he may think proper, £1000 to his said son similarly for distribution amongst hospitals, schools and other charities in Jerusalem under the advice of the London Beth Din and the Executive of the Anglo-Jewish Association, £100 to the Jewish Lying-in Charity, Great Alie-street London, E He also left the following charitable legacies to be treated as capital only £500 to King Edward's Hospital Fund, £250 to the London Hospital, £100 each to the Metropolitan Hospital Kingsland-road, N, the Great Northern Hospital, the Middlesex Hospital, the Brompton Hospital for Consumption, the German Hospital Dalston, the Chest Hospital, City-road, N, the City of London Hospital for Diseases of the Chest, Victoria Park, E, the Great Ormond street Hospital for Children, the East London Nursing Home, Queen Alexandra's Fund for Victoria Jubilee Nurses, the Home and Hospital for Jewish Incurables, High road, South Tottenham, N, the Jews' Hospital and Orphan Asylum, the Home for Aged Jews, Wandsworth Common, S W the Jewish Deaf and Dumb Home, Wandsworth Common, the Jewish Institution for the Relief of Indigent Blind, and the Jewish Convalescent Home and Sanatorium for Consumptives, West Brighton —By the will of the late Mr Sidney Ashton, of Kennington Park-road, London, the testator left £500 each (free of duty) to St Thomas's Hospital, King's College Hospital, Guy's Hospital, and Spurgeon's Orphanage, Stockwell —The late Mr Richard Cobden Michell, of Oakfield, Shoot-up-hill, Cricklewood, N W left by will £1000 to the Middlesex Hospital —By will the late Mrs Susan Wilcockson, of Lushington road, Eastbourne, left £1000 each to St Dunstan's Blinded Soldiers' and Sailors' Hostel, and St Bartholomew's Hospital, and £500 each to the Children's Hospital, Great Ormond street, and Dr Barnardo's Homes —Mr Henry Warner Prescott, of Brantyngeshay, Chilworth, Surrey, besides other bequests left on the decease of his sister over £23,000 to charities including £2500 to the East London Hospital for Children and Dispensary for Women, £2000 to the London Homœopathic Hospital, £1500 to the Western General Dispensary, £1000 each to the Royal Surrey County Hospital, Guildford, the Surrey Convalescent Home for Men, Seaford the Children's Convalescent Home for Surrey, and the Victoria Convalescent Home for Surrey Women, Bognor —Mr Frank Bruce Howden, of Red Cliff, Paignton, who left £32,056, after certain personal bequests directed that the residue of his property be divided into 80 parts, of which he left ten parts to Dr Barnardo's Homes, ten parts to Lord Mayor Treloar Cripples Hospital and College ten parts to South Devon and East Cornwall Hospital, Plymouth, for general purposes, five parts to the East Cornwall Hospital, Bodmin, for the perpetual endowment of a cot to be called the "George Bruce Howden Cot" in memory of his late son, five parts to the Royal Cornwall Infirmary, Truro for a like purpose, and four parts to the Paignton and District Hospital —Miss Martha Jane Guest, of Pendleton left £1000 to the Manchester Children's Hospital, Pendleton, for a "Robert Guest" bed and £100 each to St Dunstan's Hostel for the Blind and Dr Barnardo's Homes —Mr Samuel Lord, of Hale, Cheshire, left £1000 to the Manchester Royal Infirmary, £500 to Ancoats Hospital, and £250 to the Boys' and Girls' Refuges and Homes, Manchester, and £1000 for other charitable institutions as his executors may decide —Mrs Dyson, of Highfield, Scotland-road, Nelson, has given £1000 to the endowment fund of Reedyford Hospital in memory of her late husband

A Statistical Investigation
INTO THE
CAUSATION OF PULMONARY EMBOLISM FOLLOWING OPERATION.

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THE study of post-operative embolism from the clinical standpoint has now been active for roughly 30 years, and during the last decade particular attention and interest have centred around the questions of causation and prophylaxis.

HISTORICAL SUMMARY.

In 1902 Keys published 10 cases of embolism following operations on the bladder, and four years later Boise gave a short review of the previous literature, and made a series of suggestions for prophylaxis, some of them rather unusual. Gibson (1909) again reviewed the literature and summarised the opinions of various writers on the subject. He mentioned that elderly patients and those undergoing operations below the diaphragm seemed more liable to embolism than others. A brief analysis of 14 cases occurring at the Middlesex Hospital was given by Hastings (1907). He drew attention to the fact that symptoms of thrombosis in the veins of the leg are usually absent in cases of massive embolism. Only three cases in his series showed naked-eye evidence of sepsis, but the majority had a slight degree of pyrexia for a few days before the embolism took place. Wilson (1912) published an excellent summary of 36 cases of pulmonary and 11 of cerebral embolism that occurred at St. Mary's Hospital, Mayo Clinic, between 1899 and 1911, and also analysed the surgical practice at the clinic during that period. He noted a progressive rise from year to year in the number of cases of embolism, and a concurrent rise in the number of abdominal operations performed during that period. He advised movement as soon as possible after operation as a prophylactic measure. Symonds (1918) expressed the opinion that massive embolism was uncommon in severe septic conditions, and usually followed a very mild phlebitis. He mentioned its prevalence after abdominal operations, and recommended early movement and the disuse of knee-pillows. Two years later Hampton and Wharton (1920) published a paper based on the gynæcological practice of the Johns Hopkins Hospital. They studied thrombosis of the veins of the leg as a separate item, and drew a distinction between pulmonary infarction and embolism. The former term they applied to cases in which smaller emboli had given rise to clinical signs of infarction, such as pain and hæmoptysis, but had not of themselves proved fatal, while the latter was used to indicate cases in which large clots had obstructed the main branches of the pulmonary artery and had rapidly caused death in the majority of instances. They also observed that massive embolism was not usually preceded by clinical evidence of thrombophlebitis, whereas infarction frequently was. Out of the 21 cases of embolism in their series, only three showed evidence of thrombophlebitis before the embolism occurred, and these three cases included the only two survivors. No summary was given of the series of operations in which these cases occurred. Rupp (1921) published 59 cases of embolism in a series of 22,689 operations. He gave details of all the cases of embolism, but did not analyse the operations, and came to no very definite conclusions. Wharton and Pierson (1922) considered that post-operative chest complications are embolic in origin in a large number of cases. They approached the subject mainly from the clinical standpoint, and discussed the methods of diagnosis. Lockhart-Mummery (1921), speaking at a meeting of the Royal Society of Medicine, expressed the opinion that a combination of venous stasis with the liberation of thrombokinase is required to produce thrombosis and embolism. Gordon-Watson (1922) has described the methods he adopts in prophylaxis, which include the institution of breathing exercises as soon as possible after operation.

SUGGESTED PREDISPOSING CAUSES.

The present opinions as to the factors predisposing to massive embolism after operation may be summarised from the report of the B.M.A. meeting at Bradford in 1924 (THE LANCET, 1924). They are:—

1. Stasis in the veins—for which a number of reasons were suggested, such as loss of fluid from purging, vomiting and hæmorrhage, lowering of blood pressure from shock, morphia, or prolonged anæsthesia, and posture during operation.
2. Sepsis—either at the site of operation or extending from it to the veins, giving rise to the thrombus.
3. The liberation of thrombokinase in the wound.
4. Trauma—especially powerful retraction, causing thrombosis in the veins of the abdominal wall, which spreads along them to reach the external iliac or femoral veins.

In a paper read before the Royal Society of Medicine, Lindsay (1925) laid stress on age as an important predisposing cause of embolism. This paper is an attempt to determine which of these several factors are the most important, and whether there may not be some other factor, not as yet considered, which has a bearing on the question.

SCOPE AND METHOD OF PRESENT INVESTIGATION.

The records of the Pathological Institute of the London Hospital were consulted for the years 1909 to 1925 inclusive, and all examples of pulmonary embolism were taken with the following reservations. First, those cases alone were accepted in which the artery obstructed was not smaller than a branch to a lobe. Secondly, all cases of pyæmia were excluded, and also those cases of heart disease in which no other source for the embolus could be found than a thrombus in the right heart. Thirdly, to meet the objection (Glynn, 1924) that many cases considered to be embolic in nature are really cases of primary thrombosis of the pulmonary artery, all cases were excluded in which there had been any doubt as to the embolic or primary thrombotic nature of the clot found in the lungs. Clinically the cases selected would correspond to Hampton and Wharton's cases of "embolism"—cases in which death occurs rapidly after a sudden attack of dyspnœa and cardiac failure, sometimes preceded by an urgent call for the bed-pan. The following numbers were obtained:—

TABLE I.

Cases in which no operation had been performed	154
Cases following operation	195
Cases following fracture	12
	361

These figures should not be taken to indicate that embolism most commonly follows operation, as there are more than twice as many surgical as medical admissions each year to the London Hospital.

The number of complications present in most of the cases without operation made it impossible to classify them satisfactorily. Again, an attempt to determine whether, as has been suggested, the incidence of embolism is on the increase, proved inconclusive, as there were large irregular fluctuations of the annual numbers, and no statistically significant secular trend could be proved to exist. It was, therefore, decided to confine the statistical analysis to an examination of the cases in which the embolism had followed an operation.

Evidently the best way in which such an analysis could be carried out would be to compare all cases of embolism occurring in the London Hospital throughout the period in question with the total surgical practice of the corresponding period. But practically this is an impossible task—first because all cases of embolism will not have come to autopsy, and secondly because the number of cases treated surgically at the hospital is so vast Consequently the analysis must be based on a comparison between samples of the embolism cases on the one hand and the cases of operation on the other

If N be the total number of emboli following operation that occurred at the hospital between 1909 and 1925, and S the total of operations performed during that period, then N/S will be the true incidence rate Now, if *n be a fair sample of N* and s a fair sample of S, then N/S will equal n/s multiplied by a constant depending on the relative values of n/N and s/S, the constant being Ns/nS Again if n and s are subdivided into categories such as age or type of operation, so that n1 + n2 + n3 + = n and s1 + s2 + s3 + . = s, then n1/s1 and n2/s2 will bear a similar relationship to the proportions between the corresponding subdivisions (N1/S1 and S2/N2) of the total numbers, were these available, the relationship being, as before, the constant Ns/nS, so that N1/S1 = n1/s1 × Ns/nS *Hence a comparison between samples* will prove a true index to a similar comparison between total numbers, and this principle forms the basis of the present investigation * The only error to which such a comparison is liable is the computable error of random sampling The essential condition is that n shall be a true sample of N and s of S, and to ensure this is, of course, the chief difficulty

Since the consent or refusal of the relatives to a post-mortem examination is the only form of selection exercised in determining which cases shall come to necropsy, it seems reasonable to assume that the cases of embolism coming to necropsy are a true random sample of all cases in which embolism occurred In making a sample of the operations performed at the hospital to act as a control series, the following method was adopted Four thousand consecutive cases of major operation were taken from the alphabetical records of surgical admissions from 1916 up to the present time, maintaining the same proportion between surgical male, surgical female, and gynæcological cases, for which separate files are kept, as exists between the numbers of admissions in these groups The *distribution was as shown in Table II*

TABLE II

	Total admissions, 1921–25	Controls taken
Surgical males	23,064	2021
Surgical females	17,592	1543
Gynæcological	4,966	436
	45,622	4000

The term "major operation" is indefinite For a variety of reasons the following arbitrary definition was made All cases in which the peritoneum was opened, cases of malignant disease outside the abdomen in which an attempt at cure was made; removal of peripheral benign tumours, cases of osteomyelitis in which the bone was drained, drainage of deep abscesses in axilla and groin and those situated on the trunk, orthopædic operations involving more than a simple closed tenotomy, all set operations on the long bones, nervous system, and vault of skull, skin grafts, operations on the genito-urinary apparatus, including lithotrity, cystodiathermy, and internal urethrotomy, amputations, fractures of the long bone, skull, and pelvis, dislocations of shoulder and hip, operations for piles and fistula The following cases were excluded All operations on the ear, nose, and throat, except those involving a dissection of the glands in the neck, all ophthalmic operations, repair of minor traumata, including amputation of digits, the drainage of peripheral abscesses not specified above, simple dilation and curettage, cystoscopy, urethroscopy, œsophagoscopy, and sigmoidoscopy, simple dilatation for anal fissure, drainage of empyemata, all operations connected with parturition, whether full term or premature, except Cæsarean section

It would appear reasonable that control cases taken in this way should prove a fair sample of all "major operations" performed at the hospital, because the only selection exercised is the sequence in which the cases appear in the files, and this depends merely on the surname of the patient

PRELIMINARY TABULATION

With the series of cases of embolism and the set of control operations thus obtained, a number of tabulations was made It appeared that sex played no part as a predisposing cause, the proportion of emboli to operations in the two sexes being almost the same Pelvic operations carried no uniformly heavy rate of incidence as compared with other operations, and indeed showed very great variation among themselves

While making these tabulations it was noticed that the largest proportions of emboli were found in those conditions which showed a high average age of incidence, and accordingly Table III was drawn up to show the average age and relative incidence of embolism in a series of types of operation which had been followed by a reasonably large number of emboli

TABLE III

Type of operation	Control cases and per cent of total	Emboli and per cent of total	Average age	Proportion as percentage
	%	%		
Appendicitis	761 (32·1)	25 (18·1)	25	3·3
Inguinal and femoral herniæ	328 (13·9)	8 (5·8)	34	2·4
Gynæcological	465 (19·6)	25 (18·1)	41	5·4
Gastric and duodenal ulcers	252 (10·6)	22 (15·9)	44	8·7
Gall bladder	153 (6·5)	13 (9·4)	48	8·5
Pelvic colon and rectum	130 (5·5)	9 (6·5)	48	6·9
Bladder and urethra including prostatectomy	161 (6·8)	27 (19·6)	56	16·8
Umbilical hernia, (adult)	13 (0·5)	6 (4·3)	63	46·0
Halstedt's amputation of breast	105 (4·4)	3 (2·1)	50	3·0
—	2368	138	—	—

It will be noticed that there are 29 more gynæcological cases shown in Table III than were taken as controls This is due to the *fact that occasionally* gynæcological operations, mostly emergencies, are performed by the general surgeons, and so appear in the files of surgical females Twenty-nine such cases appeared in the sample taken from the surgical female records, and in *this investigation* should clearly be added to the figures for gynæcological cases The table seemed to indicate quite definitely that age was an important factor, with the striking exception of Halstedt's operation, which showed a high average age, but a low rate of incidence for embolism At the same time it was noticed that the cases of embolism following operations on the bladder, rectum, and female genitalia were confined almost entirely to those cases in which an incision through the anterior abdominal wall had been used Out of the 25 cases following gynæcological operations 21 had an anterior abdominal incision, and a similar incision had been employed in eight out of the nine rectal cases and in all the 27 cases occurring after operations on the bladder

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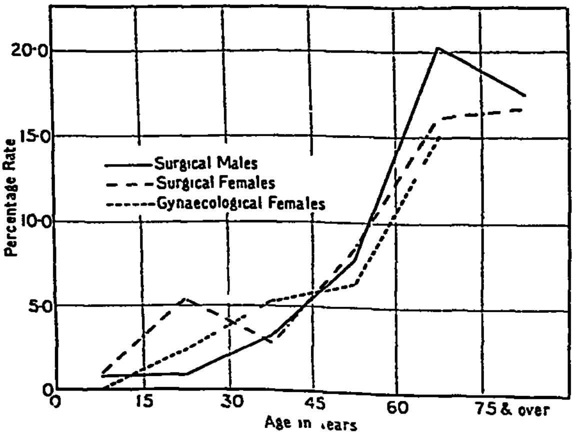
* Perhaps the point may be made clearer by an imaginary example Suppose we had to deal with a village in some primitive country inhabited by different races, where there were no organised vital statistics and we wished to know whether these races had different death rates We might arrange to note the nationalities of those who died within a limited period and the nationalities of the inhabitants of every tenth house, taken at random, at a given moment Then if we found that the proportion of the nations among the deaths differed significantly —i e, with regard to the error of sampling—from the proportion among the living, or, what comes to the same thing, that the ratios of deaths to living for the several nations were not all significantly equal, we should justly conclude that the true (and unknown) death rates were also unequal But the conclusion would be quite false if either the selection of the houses was biased, or *the* time for making the enumeration biased—e g, coinciding with a migration to or from the village of a particular nation

Two points, therefore, emerged and seemed worthy of a more critical investigation—namely the effects of age and of an anterior abdominal incision

Age as an Ætiological Factor

Since the age distribution of the gynæcological cases differs slightly from that of the other two groups, it is better to treat the three groups separately In testing the influence of age in the production of embolism one must assume, in the first place, that the age distribution in the control series is a random sample of the age distribution of operations in each of the three sections taken separately throughout the period to which the emboli refer In the second place, it must be accepted that the proportion of emboli in the various age-groups is the same in subjects examined post mortem as in those on whom no necropsy was performed That this is reasonable has already been suggested



The graph here given shows the proportion of embolism cases to sample operations expressed as a percentage plotted against the various age-groups It will be seen that the form of the curves is very similar in all three sections They all rise more steeply after 30 years of age The question as to whether the three sections are comparable, apart from the form of their curves, is immaterial to the point at issue

If it is accepted that the percentage for each age group is subject to sampling error only, then the observed results can be checked by the hypothesis that in the three younger age-groups the number of operations is over-estimated by four times the probable error in a random sample, while the three older age-groups are under-estimated to the same extent This hypothesis is unfavourable to the theory that age increases the liability to embolism, but it is not too widely beyond the probable range of chance fluctuation (The probable error of a frequency is 0·67449 $\sqrt{pqn}$ where p is the proportion of the total n falling in the given class and q = 1 − p)

The curves in the graph were drawn from the figures in the column for the observed rate of incidence shown in Table IV, while the right hand two columns of this table give the results obtained by applying the correction based on the above unfavourable hypothesis In order to keep the total of cases constant in the adjustment, the surplus from the younger age-groups has been distributed over the older age-groups in proportion to the numbers already in these groups The numbers of emboli have not been altered, and are the same in observed and adjusted columns

It is seen that even under the unfavourable hypothesis there is still a marked increase in the incidence of embolism among the older age-groups in all three sections The result, therefore, indicates that age by itself plays an important part in predisposing to embolism and the figures given by Rupp (1921) appear to support this view, as in his series the number of cases of embolism in each age-group rises steadily up to the age of 70 However, as the number of operations in each age-group is not given, his figures are inconclusive on this point

TABLE IV —*Table of Age Incidence of Emboli*

Ages	Emboli	As observed		On unfavourable hypothesis	
		Sample cases and rate per cent		Adjusted cases and rate per cent	
		Surgical Males			
			%		%
0–15	3	399	(0·75)	351	(0·85)
15–30	4	416	(0·96)	368	(1·09)
30–45	13	405	(3·21)	357	(3·64)
45–60	31	392	(7·91)	484	(6·40)
60–75	40	199	(20·10)	246	(16·26)
75–over	4	23	(17·39)	28	(14·29)
		Surgical Females			
0–15	2	205	(0·98)	169	(1·18)
15–30	14	356	(5·33)	312	(4·49)
30–45	12	416	(2·88)	370	(3·24)
45–60	27	319	(8·46)	410	(6·59)
60–75	18	112	(16·07)	144	(12·50)
75–over	2	12	(16·67)	15	(13·33)
		Gynæcological			
0–15	0	1	—	0	—
15–30	2	85	(2·35)	63	(3·17)
30–45	12	232	(5·17)	203	(5·91)
45–60	8	127	(6·30)	172	(4·65)
60–75	3	20	(15·00)	27	(11·11)
75–over	0	0	—	0	—

Note—The observed percentage rates of incidence for the totals in the three groups are very much the same surgical males, 5·18, surgical females, 5·28 gynæcological, 5·38

Influence of the Anterior Abdominal Incision

In order to decide the influence of an anterior abdominal incision (hereafter abbreviated as A A I.) on the incidence of embolism, two provisos must again be accepted The first is that the ratio of necropsies to deaths is not greater in cases with A A I than in other cases, the second, that apart from errors of random sampling, the proportion between cases with and without A A I is the same in the control series as in the whole surgical practice in each of the three sections taken separately throughout the period to which the emboli refer With regard to the latter proviso it should be noted that when deciding what operations should be taken as controls, all cases with A.A.I were included, on the other hand, the remainder of the control cases represent only a fraction of all operations performed at the hospital without A A I In the following tables the cases of embolism following operations not covered by the definition of "major operations" have been excluded, so that the comparison may be placed on a fair basis This correction involved the exclusion of 8 out of 22 cases of embolism which did not follow "major operations"

Table V sets out the data in 15-year age-groups If the two provisos are accepted, and if there were no difference as regards incidence of embolism between operations with and without A A I, one would expect that in any age-group the number of emboli observed would be divided between cases with and without this particular incision in the same ratio as were the operations In columns 5 and 6 are the cases of embolism as observed, while column 7 shows the numbers of emboli following A.A.I's as they would have been expected were there no differences between the incidence of embolism in the two classes of operation

In all three sections and in nearly all age-groups the observed number of emboli in the A.A.I class

TABLE V —*Showing Incidence of Emboli in A A I Cases compared with other Cases of Major Operations*

Ages	Control operations	A A I cases	Other cases	Total emboli	A A I emboli	Other emboli	"Expected" A A I emboli	
							From sample	Adjusted
				Surgical Males				
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
0–15	399	247	152	1	1	0	0 62	0 68
15–30	416	261	155	1	1	0	2 5	2 8
30–45	405	277	128	12	11	1	8 2	8 95
45–60	392	245	117	30	25	5	18 7	20 8
60–75	199	153	46	40	38	2	30 8	34 0
75–over	23	15	8	4	4	0	2 6	3 7
				Surgical Females				
0–15	205	117	88	1	1	0	0 57	0 67
15–30	356	231	125	13	13	0	8 15	9 5
30–45	416	235	181	11	11	0	6 2	6 94
45–60	319	188	131	27	24	3	15 9	17 9
60–75	112	75	37	17	15	2	11 4	13 1
75–over	12	12	0	2	2	0	2 0	—
				Gynæcological				
0–15	1	1	0	0	0	0	—	—
15–30	85	70	15	2	2	0	1 6	1 9
30–45	232	182	50	12	12	0	9 4	10 2
45–60	127	82	45	8	7	1	5 2	6 1
60–75	20	13	7	3	3	0	2 0	2 8
75–over	0	0	0	0	0	0	—	—

Note —Col 7 is based on the observed proportions of A A I and other cases among the sample operations Col 8 assumes that the true proportion of A A I operations is greater than the observed proportion by four times the probable error of sampling of the latter

(col 5) is greater than the expected (col 7) The exceptions are all in age-groups in which but few cases occur

The next table (VI) shows that this excess is beyond the range of error probable in a chance distribution

TABLE VI

Surgical Males A A I Group

Ages	Probability* of getting—	A	B
15–30	4 out of 4	0 15	0 23
30–45	11 or more out of 12	0 069	0 11
45–60	25 „ 30	0 012	0 063
60–75	38 „ 40	0 0023	0 015
75–over	4 out of 4	0 18	0 72

Surgical Females A A I Group

Ages	Probability* of getting—	A	B
15–30	13 out of 13	0 0036	0 013
30–45	11 „ 11	0 0019	0 0063
45–60	24 or more out of 27	0 00074	0 0076
60–75	15 „ 17	0 047	0 27

Gynæcological A A I Group

Ages	Probability* of getting—	A	B
15–30	2 out of 2	0 68	0 87
30–45	12 „ 12	0 054	0 16
45–60	7 or more out of 8	0 16	0 39
60–75	3 out of 3	0 27	0 82

* This probability is found by summing those terms of the binomial $(p+q)^n$ in which the index of p is greater than (or equal to) the observed number of embolisms in the A A I class, where p is the chance of an embolism falling in the A A I class (based on the proportion of A A I operations) $q=1-p$ and n is the number of embolisms to be distributed in the given age group

Note —Col A is based on the observed proportions of A A I and other cases among the sample operations Col B assumes that the true proportion of A A I operations is greater than the observed proportion by four times the probable error of sampling of the latter

It will be seen from Table VI that in nearly every age-group with relatively large numbers of cases the result observed is an unlikely one to have been obtained if A A I and other operations were equally liable to embolism The result, however, depends on a random sampling of the operation cases, and is liable to error on this account The proportion of A A I to total operations in each age-group can be adjusted by applying the same method as was used in the study of the age factor—namely, by supposing the proportion of A A I to total operations to be under-estimated by four times the probable error In column 8 of Table V the numbers of emboli expected under this unfavourable hypothesis are given, and it will be seen that even so, on the whole the observed numbers still exceed the expected The evidence, therefore, points to the conclusion that an anterior abdominal incision predisposes strongly to embolism, whatever the ultimate object of the operation An interesting statement in the paper by Wilson (1912) already referred to lends support to this view He shows that in 119 vaginal hysterectomies performed at St Mary's Hospital, Mayo Clinic, between 1899 and 1911, no single case of embolism occurred, whereas in 1712 abdominal hysterectomies 5 cases of embolism occurred, or an average of 1 in 342

Another point of interest, but one less amenable to proof, is that if only operations with an A A I are considered, the incidence of embolism in any given condition depends on the average age of the condition, and is apparently independent of any other factor Table VII , which is Table III modified by the exclusion of control and embolism cases without A A I suggests that this is the case

TABLE VII

Type of operation	Control cases and per cent of total	Emboli and per cent of total	Average age	Proportion as percentage
	%	%		
Appendicitis	761 (37 7)	25 (18 8)	25	3 3
Inguinal and femoral hernia	328 (16 3)	8 (6 0)	34	2 4
Gynæcological	348 (17 3)	24 (18 0)	40	6 9
Gastric and duodenal ulcers	252 (12 5)	22 (16 5)	44	8 7
Gall bladder	153 (7 6)	13 (9 8)	48	8 5
Pelvic colon and rectum	66 (3 3)	8 (6 0)	54	12 0
Bladder and prostate	95 (4 7)	27 (20 3)	55	28 0
Umbilical hernia (adult)	13 (0 6)	6 (4 5)	63	46 0
—	2016	133	—	—

Whether the figures in Table VII are comparable or not depends on two further provisos first, the A A I cases should bear a constant proportion to admissions in each of the classes—surgical male, surgical female, and gynæcological That this is almost the case is shown by Table VIII The number of admissions from among which the control cases were taken and the number of A A I operations in the control series are there tabulated for each class. The correction for the *29* gynæcological cases operated on by the general surgeons, as previously mentioned, has again been made

TABLE VIII

—	Admissions	A A I operations	Proportion as percentage
Surgical males	3860	1198	31 1
Surgical females	2790	858	30 8
Gynæcological	1175	348	29 8

Thus the variation is under 4 per cent , and would not affect the foregoing table to any great extent In the second place it must be accepted that the proportion of post-mortems to deaths following A A I operations is the same in *all three* groups This is *extremely difficult* to verify The officials at the hospital whose duty it is to ask for permission have had many years' experience When consulted, they expressed the opinion that it is in general more difficult to obtain permission from a woman than from a man Consequently the proportion of "gynæcological" permissions granted by husbands may possibly be greater than the "surgical male" permissions granted by wives Hence it may be that the proportion given for gynæcological operations in Table VII is a little too high, and that for operations on the bladder and prostate a little too low The other types of operation would be hardly influenced by this factor

Though not conclusive, the evidence taken as a whole strongly suggests that an operation through the anterior abdominal wall is much more likely to be followed by embolism than is any operation elsewhere, and once an incision is made in this situation the liability to embolism depends on the age of the patient and not on the actual operation performed

RESULTS OF THE INVESTIGATION

The suggested causes of embolism mentioned at the beginning of this paper may now be considered in the light of these observations Lindsay's contention that age is an important factor is strongly supported, though no explanation is forthcoming Trauma to the veins of the abdominal wall by powerful retractors does not seem to cause embolism, as operations in which these are used do not carry an undue rate of incidence If the liberation of thrombokinase predisposed to the condition, then such operations as Halsted's amputation of breast or nephrectomy should show a high rate of incidence, as in these more muscle and cellular tissue is exposed than in any operation through the anterior wall of the abdomen As a matter of fact, Halsted's operation carries a very low rate, considering its high average age, and no single case of embolism following nephrectomy occurs in the post-mortem records examined

As regards sepsis, the experience does not indicate that this exerts any influence in the production of massive embolism A frankly septic condition such as appendicitis does not carry an incidence higher than that suggested by the age at which it occurs and the site of the incision required in its treatment On the other hand, of the six cases in which embolism followed the radical cure of an umbilical hernia in an adult, not one showed any sign of local sepsis at necropsy, yet this condition carries a higher rate of embolism than any other

Stasis in the veins cannot be considered as a whole, but rather with a view to determining which of the many suggested causes for stasis are really significant It is hard to see how posture during operation can exert much influence, at the most it could only partially retard the venous circulation during the operation, and if this partial obstruction can produce thrombosis one would expect thrombosis frequently to follow the use of a tourniquet or intestinal clamp In addition, the present investigation does not indicate any undue incidence following operations in which an unusual posture for the patient is adopted

It is not possible to assess the influence of morphia and the type of anæsthetic Practically every case at the London Hospital is anæsthetised by A C E mixture, followed by open ether, and an appropriate dose of morphia and atropine precedes the induction Conclusions on this point could only be reached by comparison with the experience in other hospitals where a different routine is adopted

It is also hard to determine the effect of shock, purging, vomiting, and hæmorrhage, as these factors vary so greatly in different cases undergoing nominally the same operation

Effects of Muscular Action and Respiration

Now there are two further factors which are generally considered to have a profound influence on venous circulation, but which have received only slight attention in connexion with thrombosis and embolism They are muscular action and respiration

To consider muscular action in the first place, apart from the rest in bed, which is the common lot of all surgical patients, the condition in which movement is reduced to a minimum is fracture of the femur, treated as it is by immobilisation of the limb in addition to recumbency. So far in this article fractures have hardly been mentioned As a matter of fact, fracture of the femur seems very frequently to be followed by embolism, the liability increasing with age as in all other conditions Other fractures, which are either uncommon or involve less complete inertia in their treatment, do not show a similar high incidence In this series the figures for fractured femur show nine cases of embolism with 80 controls, giving a proportion of 11 per cent In operations through the anterior abdominal wall there were 174 cases of embolism and 2404 controls, or 7 2 per cent, while for other operations the proportion was 1 6 per cent (21 emboli and 1315 cases) If it be admitted that these figures are comparable, and the same arguments apply here as in previous comparisons, fracture of the femur must be regarded as carrying a relatively great liability to embolism, and the dangers attending complete muscular inactivity must be recognised

Secondly, as regards respiration It is generally admitted that the commonest source from which massive emboli arise is the great veins of the lower abdomen—namely, the iliac veins and their larger tributaries In the present series, where evidence as to the origin of the embolus was forthcoming, these veins accounted for 97 5 per cent of the cases with an anterior abdominal incision, and 50 per cent. of the remainder Now these veins are not surrounded by muscles, and are therefore deprived of the assistance given by muscular action, and depend almost entirely on respiration for the maintenance of the blood flow through them Respiration performs this function in two ways During inspiration a negative pressure is set up, which draws blood into the thorax, while at the same time the diaphragm descends, raising the intra-abdominal pressure, and by a *vis a tergo* drives the blood from the abdominal into the thoracic veins The venous return from the head and upper limbs depends on the first of these methods, assisted to some extent by gravity, and costal respiration will suffice for its maintenance, but this is not the case in the abdomen, where the venous return depends mainly on diaphragmatic action, and if this action be inhibited, stasis will result

If, then, diaphragmatic respiration plays so important a part in maintaining the circulation in the large abdominal veins, and if, as the tables show, incisions through the anterior abdominal wall so strongly predispose to embolism, it would seem reasonable to suppose that such incisions in some way modify this form of respiration Now the raised intra-abdominal pressure caused by the downward movement of the diaphragm will give rise to pain by stretching an incision in this situation but in no other, and hence in such cases this form of respiration will tend to be reduced to a minimum also Stasis in the iliac veins and their tributaries from this cause would certainly seem to account for the great preponderance of emboli following operations performed through the anterior wall of the abdomen There is one example of an incision in this situation which is little liable to stretching in this manner, partly owing to its position and partly to the firm pressure that can be applied to it by bandages This is the incision used in the radical cure of inguinal and femoral herniæ, and it will be seen from Table VII. that this operation does indeed carry a lower rate of incidence for embolism than would be expected from its average age. How far the prophylactic measures based on these considerations are effective cannot at present be determined, as no large series of cases in which they have been carried out has been published.

It is beyond the scope of this paper to discuss the details of these measures, but it would appear that massage to the lower limbs and breathing exercises should be instituted at the earliest possible moment after any abdominal operation, particularly if the patient is over 40 years of age, and that similar precautions be taken in cases of fracture of the femur. They should, of course, be stopped at once if the slightest suspicion arises that a thrombus has formed In addition, particularly in elderly subjects, if it is possible to perform an equally efficient operation by any other route than by way of the anterior abdominal wall—for instance, some cases of hysterectomy—this route should be adopted

No claim is made that these conclusions are original They have, in particular, been emphasised by Gordon-Watson (1922), who has advocated prophylactic measures in the lines stated above, but so far as the writer's knowledge goes, no *statistical* evidence based on a large series of cases has ever been put forward in their support

SUMMARY.

1 195 cases of pulmonary embolism following operation, and 12 cases following fracture, taken from the records of the Pathological Institute of the London Hospital, are compared with the surgical practice of the hospital, as represented by 4000 major operations taken at random from the surgical records

2 The comparison indicates that there are two outstanding factors which predispose to post-operative embolism—namely, the age of the patient and an incision through the anterior abdominal wall In addition, fracture of the femur carries a high rate of incidence for this complication

3 Free muscular action and well-balanced respiration, both costal and diaphragmatic, are the most important factors in maintaining efficient venous circulation Free muscular action is conspicuous by its absence in the treatment of fracture of the femur, and it is suggested that inhibition of diaphragmatic respiration accounts for the comparatively high incidence of embolism after operations through the anterior abdominal wall

4 Prophylactic measures should be directed towards the restoration of these two functions at the earliest possible moment after operation

In conclusion, my thanks are due to Prof Major Greenwood, of the National Institute for Medical Research, and to Prof H M Turnbull, of the London Hospital—the former for his invaluable assistance in supplying the general outline of the investigation and the statistical examination of the figures, and the latter for other help and his kindness in allowing me to use the records of his department

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THE NEW WESTMINSTER OPHTHALMIC HOSPITAL — The new building in Broad-street, W C, which is now being erected, consists of eight floors and a basement The out-patients' department is on the ground floor, the first floor is given up to offices and the research department, on the second are the private wards for paying patients, the operating theatre, and the house-surgeon's quarters The next two floors are respectively for wards for women and children and men, the nurses will live on the fifth floor, and the two uppermost storeys will be used for kitchen and service purposes There will be room for 85 in-patients, the present building at Charing Cross accommodates only 42

ON THE NATURE OF IMMUNITY TO IMPLANTED MALIGNANT TUMOURS

BY THOMAS LUMSDEN, M D ABERD

(From the Department of Experimental Pathology, Lister Institute)

(WITH ILLUSTRATIVE PLATE)

IN communications published in THE LANCET during the last year or two some observations were recorded which it may be well to recapitulate very briefly

Primarily it was the fact[1] that normal and tumour tissues can be cultured for some weeks in vitro, in pure serum alone, which made it possible to test conveniently thereon the effects of various body fluids from normal and from immune animals. Of the tumours used the mouse carcinoma M 63 grows most freely in vitro Jensen's rat sarcoma (J R S) is also easily cultured The rat carcinoma (R 9), Prof Ledingham's guinea-pig sarcoma,* and human breast cancer grow freely only when very vigorous fragments are obtained

The next advance[2] was the observation that if fragments of any of the above tumours were injected into a heterologous animal—e g, rabbit or sheep—the serum of this animal (previously innocuous) became highly toxic to cultures of the antigenic tumour, killing the malignant cells within a few minutes with certain characteristic signs[3]

The toxicity of such a serum was later shown to be not entirely specific, thus an antiserum to human breast cancer (made in a sheep) proved lethal in vitro not only to human but also to mouse cancer cells,[4] while it had not the slightest harmful effect on cultures of normal mouse tissues

Last year an attempt was made to apply these reagents in vivo An antiserum made against J R S was injected into a J R S tumour of the foot of a rat and the circulation in the part was shut off for two to three hours Regression of the tumour then always took place and the rat was thereafter immune to J R S in every part of its body Some months ago[4] it was reported that if a rat had a J R S tumour of each of two feet, the cure of one of the pedal tumours in the above way was invariably followed by reabsorption of the untreated tumour of the other foot Rats so cured were hyperimmunised by many weekly injections of fragments of J R S (H rats), but, somewhat unexpectedly, it was found that J R S cells could be grown freely in vitro in the serum (H S) of such hyperimmune rats, even in the presence of many leucocytes spreading out from a fragment of the spleen of an H rat cultured in the same drop It was, in other words, found impossible at that time to demonstrate the existence of antibodies in the serum of a rat which had been hyperimmunised against sarcoma The problem, "When an animal has been rendered resistant to a particular tumour wherein does its immunity consist?" remained unsolved The experiments described below throw some light on the whole question

Experimental Methods and Results

The methods employed were mostly those detailed in the previous communications One or two other procedures are mentioned below while describing the experimental results obtained

(a) *Study of Immunity to Heterologous Tumours*

When the mouse cancer M 63 is implanted into the flank of several young adult rats, in some of these, as is well known, the mouse tumour cells proliferate freely for a week or so and then regression takes place In several cases such a tumour was removed when the size of a small haricot bean, that is at its maximum growth (seven days), a small portion was fixed for histological examination, another part was cultured in vitro and grew freely for two to three weeks, the remainder was minced and fragments were inoculated into six mice and six rats

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* For specimens of these tumours I am indebted to Dr J A Murray, F R S, Director of the Imperial Cancer Laboratory, in whose reports descriptions of the growths can be found

[1] THE LANCET 1924, ii, 65

[2] Ibid 1925, i, 383

[3] Ibid, 1925, ii, 539

[4] Ibid, 1926, ii, 112

The fixed portion when cut and stained demonstrated that the tumour cells, which showed many mitoses, were individually like ordinary mouse cancer cells but the plentiful stroma and the general arrangement reminded one of the appearance of rat cancer grown in the rat—e g R 9

Of the six mice inoculated the tumour grew progressively in four In the six rats the fragments were imperceptible after the third day; even the transient proliferation which occurs when M 63 cells from a mouse are injected did not take place The tumour cells instead of becoming acclimatised had in effect been attenuated by their residence in the young adult rat In infant (24-hour) rats whose resistence is very low the opposite appears to be the case, and acclimatisation occurs to some extent

The results obtained by the application of different sera to cultures of M 63 cells which had previously been propagated in the rat or the mouse respectively were instructive Table I shows these results

TABLE I

Serum applied	Effect on culture of M 63 cells grown in a rat	Effect on M 63 cells grown in a mouse
Serum of the rat in which the M 63 was grown.	No damage	Rapid death (5 mins)
Serum of any other rat which has grown an M 63 tumour	"	" "
Serum of a rat in which the M.63 implantation did not grow even temporarily	"	Death in 15 mins
Anti-M 63 (rabbit) serum	Death (10 mins)	Rapid death (5 mins)
Antiserum against J R S from sheep	" "	" "
Antiserum to human mammary cancer (sheep)	Death (30 mins)	" "
Anti-fish-roe serum (rat)	No damage	Death of some cells

It can be shown, then, that the serum of a rat in which an M 63 tumour is growing contains, after seven or eight days, a high titre of antibodies against mouse-grown M 63 cells Four days after inoculation these antibodies begin to appear and the titre remains high for over three months at least. When such a serum is applied to a culture of M 63 from a mouse it rapidly kills all the actively migrating cells It is, however, impossible to demonstrate the existence of these antibodies if the serum is tested on cultures of M 63 fragments taken from a rat

The rat-grown M 63 cells are, in some as yet undefined way, specifically protected against these rat-made antibodies as far as in vitro experiments go That this protection is not merely due to selection of especially resistant cells is suggested by the in vivo results referred to above Its nature will be discussed later

Antisera against J R S or human cancer (made in sheep) or against M 63 (made in a rabbit) kill M 63 cells grown either in the rat or mouse, but even to such sera the rat-grown M 63 cells are slightly more resistant than ordinary M 63 cells from a mouse

(b) *Study of Immunity to Homologous Tumours*

The above observations suggested that possibly, after all the serum of rats hyperimmunised against J R S (H rats) did contain antimalignant bodies, although, as in the case of rat-grown M 63 cells, their presence could not be demonstrated on rat tumour cells The serum of such H. rats was therefore tested on cultures of M 63 (from mice) Serum drawn from an H rat seven or eight days after the last of several weekly reinoculations with J R S invariably damages and when of high titre or if two or three times reapplied kills in vitro cultures of M 63 with all the characteristic appearances seen when death occurs following the application of antisera (Fig I B) When of low titre only certain selected cells are so killed, generally, but not always, these susceptible cells are at the periphery of the culture ("outliers") The effect is very similar to that produced on cultures of M 63 by the serum of a rat which has been inoculated six or eight time with fish roe

This evidence of the existence of antimalignant bodies in H serum and the fact that they had, unaided no deleterious effect on in vitro cultures of J R S led to a further search for some other factor which might render them lethal. since they were unlikely to be produced without some purpose. The most likely adjuvants were the phagocytes These could best be isolated from peritoneal exudate, a fluid in any case worthy of investigation, since it had already been shown that once a rat had been cured of J R S ,[2] fragments of this growth could be inoculated weekly into the peritoneum (or anywhere else) without harm, whereas such an injection into normal rats gave rise to multiple tumours

To investigate these points the following method was used Fragments of J R S, about 0 25 c cm in all (4 to 5 c cm of broth was later found almost as effective and more convenient), were injected into the peritoneum of immune, of normal, and of tumour-bearing rats After four hours the exudates were removed by means of a sterile syringe This is not an easy procedure and often a very small amount of fluid is obtained, sometimes only a few drops If drawn off two hours after injection of broth much more fluid can be got but it is generally too dilute and is ineffective The more concentrated the exudate the better The exudate was centrifuged for a minute or two, the supernatant liquid was run into a capillary tube, and sealed for use later The cells were now washed with 40 or 50 times their bulk of Ringer's solution and again centrifuged, the fluid pipetted off, and the cells with (to avoid dilution) the least possible amount of Ringer were run into a capillary tube, the ends of which were sealed in a flame

The cellular and fluid content of the peritoneal exudates were tested with controls on altogether well over 600 actively growing in vitro cultures of the sarcoma J R S, &c On such cultures (as previously described) the serum of a hyperimmunised rat has not the least harmful effect, but if washed peritoneal cells from the same rat are added, the migrating tumour cells are more or less damaged and clumped, or are killed Such a serum, with peritoneal cells from a normal rat, is distinctly less injurious to the J R S cells Peritoneal cells from an immune rat plus normal rat serum does not appreciably damage the cultures, while peritoneal cells plus serum from a normal rat (except when one inadvertently selects as normal a naturally immune animal), appears to be an excellent culture medium in which the J R S cells grow and migrate vigorously. In the simplest case it was found in some 80 or 90 cultures, using fluids from ten different hyperimmune and ten normal rats, that the whole peritoneal exudate (four hours) from an immunised rat kills or severely damages cultures of J R S cells invariably though, only after six to eight hours (Fig II), while the exudate of a normal rat causes damage (if any) only in proportion to the natural resistance of the animal Normal tissues grow quite freely in peritoneal exudates In all these experiments the fragments of J R S were propagated in normal serum to begin with, and were refed daily test applications being made only 24 to 48 hours after migration, and growth were well established

It will be seen from Table II that the effects of the P E of a rat immunised against M 63 and of a mouse hyperimmunised to the same tumour confirm the results obtained with P E H

TABLE II—*Showing the Condition which Various Cultures may be Expected to Exhibit 24 Hours after the Application of Different Reagents*

Reagent	On J R S culture	On M 63 from rat	M 63 from mouse	Reagent	On J R S culture	On M 63 from rat	M 63 from mouse
N S (rat) or J S	A	A	A	P L H	D	—	—
H S	A	A	I or D	P C N + H S	I	—	—
P E N	A or I	A	A	P C H + N S	A	—	—
P E H	D	A	A	P E M 63R	A	D	—
P C N + N S	A	A	—	P C M 63R + M 63R S	—	D	—
P C H + H S	I or D	—	—	P E M 63M	A	—	D
P L N	A	—	—				

In describing the characteristic results obtained the following abbreviations are made use of P, peritoneal, C cells, L, the clear supernatant liquid after the first centrifuging E, the whole exudate before spinning H rat hyperimmunised to J R S N normal rat J rat bearing a J R S tumour, S, serum Thus P C H + H S = the washed peritoneal cells from a rat hyperimmunised against J R S, used along with the serum from the same or another "H" rat D = dead I = inactive—i e damaged A = active migration of cells M 63R = rat immunised to M 63 M 63M = mouse hyperimmunised to M 63

Table III shows in detail the effects of various applications upon J R S cultures The figures represent all the results up to Dec 15th 1926 and include some early and tentative observations, made before the importance of anaerobiosis was appreciated As mentioned later, the experiments were always weighted against the anticipated result and often heavily so It is however, thought that no selection should be made and that the general tenour and the interlocking of the evidence is sufficiently convincing, especially in view of the number of variable elements concerned [5] As was to be expected with increasing knowledge and improving technique, yet more consistent results are now being obtained.

TABLE III

Reagent applied	Condition of J R S cells the day after the test application			Reagent applied	Condition of J R S cells the day after the test application		
	D *	I †	A ‡		D *	I †	A ‡
P E H — (2½–6 hrs	54	14	—	P C H + H S	29	39	24
(2 hrs or less)	—	6	13	P C H + N S	—	9	24
P L H — (4–8 hrs)	11	9	—	P C N + H S	2	9	7
(2–3 hrs)	—	—	5	P C N + N S	2	3	15
P E N — (3–6 hrs)	8	9	19	P E H + H S	25	31	18
P L N — (3–6 hrs)	—	4	9	P L H + H S	6	24	10
H S N S — or J S	4	6	125	P E N + H S	2	5	2
				Heated P L H + H S	—	—	12
				Heated P L H + P C H	18	5	—

D * = Cells all dead I † = Many dead, some active
A ‡ = Most or all active

Of the observations given in Table III, the following may be regarded as crucial H S, N S, J S, are entirely innocuous to cultured sarcoma cells P E H and P L H are exceedingly toxic, P E N and P L N are less so P C H + H S causes, as a rule, marked damage, P C H + N S does not P C N + H S causes some damage, P C N + N S causes little, if any

If a culture is fixed and stained with iron hæmatoxylin 24 hours after P E H has been applied to it, complete chromatolysis is seen to have taken place The nuclei are pyknotic and later do not stain at all, the cell membrane has disappeared completely and the whole cell is disorganised, becoming a structureless mass of fatty and protoplasmic granules (Fig I c), the changes are somewhat different from those seen when a heterologous anti-M 63 serum is applied to M 63 cells in vitro, or when any other heterologous antimalignant serum is used to kill cultures of the tumour employed to produce the anti serum The chief difference is that in the latter case the appearance of a cell membrane is maintained, though it is clear from the distension of the cell that its permeability to electrolytes has been profoundly altered (Fig I B)

By examination of films of many peritoneal exudates and by testing their effect on cultures, it appears that the sequence of events is as follows Very early (half hour) after the peritoneal injection lymphocytes have made their way out of the blood-vessels they are soon followed by an ever-increasing horde of polymorphs, which at two hours greatly exceed them in number, by four hours the exuded cells are very numerous, polymorphs comprising about 75 per cent, mononuclears 20 per cent, and lymphocytes about 5 per cent of the cells present Coincidently with this migration into the peritoneum, reabsorption of watery fluid is continuously occurring, so that the exudate becomes more and more concentrated and its volume diminishes By this means a titre of the antibody higher than that in the blood is conceivably attained In favour of this view are the facts that P E from a rabbit immunised against mouse cancer kills cultures of M 63 practically instantaneously—i.e, even more rapidly than the rabbit's serum does—and that adding H S to P E H drawn at five hours, only lessens its activity by lowering its titre Dilution is not, however, the only effect which H S has in this way, for if before adding it to P E H or P L H the H S is heated to 56° for 45 minutes, definitely less inactivation takes place

It will be found that there is considerable variability in the effect of P C H + H S on cultures of J R S Sometimes the latter are completely killed, sometimes comparatively slight damage is done For reasons referred to above, the conditions are apt to vary in different experiments in ways not easy to control Even so, the reaction occurs so often as to become convincing when frequently repeated (Out of 92 experiments, in 29 every sarcoma cell was killed, in 39 there was serious, and in only 24 slight, if any, damage) In any case strong confirmation of the existence of a special leucocytic cytase is forthcoming in another direction

If P L H of proved toxicity is heated to 56° for 45 minutes, it becomes quite innocuous to J R S cells, and H S or N S has not the slightest reactivating effect upon it, but if P C H twice washed in Ringer's solution are thereafter kept at 37° for four hours or so in a very small quantity of the Ringer, in a rubber stoppered tube filled with nitrogen, then, adding to the heated P L H either some of these P C H, or even a drop of the supernatant fluid, completely restores its toxicity (Fig III)

Since this is so, and since the P L H drawn at, say, six hours after inoculation of broth, kills sarcoma cells in vitro, while H serum does not, it appears that the leucocytes secrete into the P.L some essential cytotoxic factor Why did they not secrete this factor while still in the blood-vessels [3] One possibility was that the change from aerobic to almost anaerobic life might be one, at least of the determining factors To test this 5 c cm of broth was injected into the peritoneum of an H rat The P E H was drawn two hours later a period at which it is easily obtained in considerable quantity (2–3 c cm) and is dilute and not yet highly toxic to *J R S cells in vitro* A *little of the P E H*, as drawn, was run into a capillary tube and was applied to a culture of J R S About 1 c cm of it was then delivered from the syringe into a centrifuge tube A under a layer of liquid paraffin about 2 cm deep A similar quantity was run into a tube B, which was simply stoppered with sterile cotton-wool Similar steps were taken with the fluid from a normal rat, tubes C and D respectively The four centrifuge tubes were placed in an incubator at 37° C for four hours At the end of this time they were centrifuged and some of the clear supernatant fluid was run into capillary tubes It was conceived that if the leucocytes only secreted their toxic factor when under mildly anaerobic conditions, then the fluid from A, when applied to a J R S culture along with H S, should damage or kill it, while the fluid from B should do so to a less extent or not at all The results of this particular experiment were as follows —

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[5] The following are some of the more evident variables which have to be taken into account and which make personal observation of the results much more informative than mere tabulation of them 1 Varying titre of antimalignant bodies in the serum or exudate of different H rats 2 Degree of natural resistance in different normal and tumour bearing rats 3 Varying quantity and concentration of peritoneal exudate obtainable from different rats even at the same period after inoculation of broth 4 Varying activity and viability of different cultures of J R S, only experience makes it possible to gauge these accurately Many controls should always be used 5 Degree of anaerobiosis attained while keeping fluids and suspensions outside the body 6 The presence of fat or debris in any exudate has per se a deleterious effect on J R S cultures 7 Red blood corpuscles if present in large numbers, delay or lessen the toxic effects of P E H, &c

J R S culture—
+ P E H (two hours) survived, though slightly damaged
+ fluid A (anaerobic) + H S = all cells killed typically
+ fluid B (aerobic) + H S = active healthy growth of the J R S cells
+ C + H S = a few cells killed others survived.
+ D + H S = active healthy growth (See Fig IV)

The observation confirms the view that the leucocytes only secrete their toxic factor at a low oxygen tension, and this may well be the *condition* which determines their doing so A device which would automatically evoke the toxic factor just when it is required—i e, when the leucocytes have extravasated It is true that in this experiment the pH of the fluid under paraffin in tube A *does not* alter much, when tested it was 7 6, while the fluid in tube B rises to 7 9, but this alteration is probably not the determining factor, since the leucocytes do not secrete their toxic factor in the blood where the pH remains constant *The contents of the tube* C + H S caused some damage, so that even leucocytes from a normal animal have some power to secrete the *cytotoxic factor*, though they do so much less effectively than P C H This confirmed many previous observations on this *point*

Although this leucocytic factor is only manufactured under more or less anaerobic *conditions, once made* it is not particularly sensitive to oxygen, for P L H kills J R S cells in vitro even after exposure to the air

These results all correspond with the fact that if J R S fragments are inoculated into the peritoneum of a normal rat they give rise to progressively growing tumours, while in the abdomen of an H rat they are rapidly got rid of and no tumour supervenes Since they seemed, however, more or less at variance with the observation previously reported,[4] that a fragment of the spleen from an H rat can be cultured in H S alongside a fragment of J R S, the numerous phagocytes and lymphocytes from the spleen intermingling with the J R S cells without apparent harm to either, the experiment was repeated These experiments confirmed exactly the earlier observations, and similar results are obtained if J R S and lymph gland, testis, or thymus are cultured together We must therefore suppose that there is some essential difference between the conditions of the two varieties of phagocytes—viz, those from the spleen culture and those from the peritoneum. Such a variation is the more readily conceivable, since it is found that quite as marked a difference exists in the effects of P E H itself if drawn from the abdomen at varying periods after the inoculation which evoked it Thus P E H drawn less than two hours after inoculation of broth into an H rat's peritoneum is dilute and has little, if any, deleterious effect on J R S cultures, while the exudate taken at four or five hours damages or *kills* such a *culture invariably* One experiment indicated that P E H. drawn at 24 hours has again lost some of its lethal effects

In all cases when two cultures differed in activity the fluid supposed to be the more toxic was applied to the more vigorous of the two—that is, the experiment was weighted against the anticipated result (*Table IV*)

TABLE IV

Slide		Condition before	Application	Condition after
1842	A	+ + + +	P E H	0 = dead
	B	+	P E N	+ + + = active
2042	A	+ + +	Anaerobic P L H + H S	0 = dead
	B	+	Aerobic P L H + H S	+ + + = active

+ Signifies active growth

Special Precautions Required in Experiments

It may be well to summarise some of the special precautions required in the foregoing experiments —

1 All cultures should be grown initially in normal serum and only those in which active migration of tumour cells is occurring should be used for experiments Cultures from two to three days old are generally the most suitable for experimental purposes

2 Draw P E H (with the least possible injury to abdominal organs or fat) four to six hours after the injection which evoked it and apply it before it coagulates, if much exudate is present its toxicity is apt to be low

3 Obtain H S and P E H just before use from a rat seven to eight days after the last of several reinoculations of J R S Test the potency of the H S on a culture of M 63 cells from a mouse

4 To obtain effective P C H draw the exudate two to three hours after broth injection centrifuge and wash with Ringer's fluid, centrifuge again, and remove the supernatant liquid till only a drop or so is left, just enough to suspend the cells Blow out thoroughly the air in the tube containing these with nitrogen and *rubber stopper at once* After four hours in an incubator at 37° C the cells and the liquid suspending them contain the toxic leucocytic factor

5 Avoid dilution of fluids and suspensions; *concentration is very important*

6 If a fluid is likely to be of low titre do not test it on a culture growing from a *large fragment of* J R S, else so much absorption of antibodies may take place that little toxic effect may be demonstrated

7 Use all fluids as soon as possible after they have been prepared, since some of the factors are distinctly labile

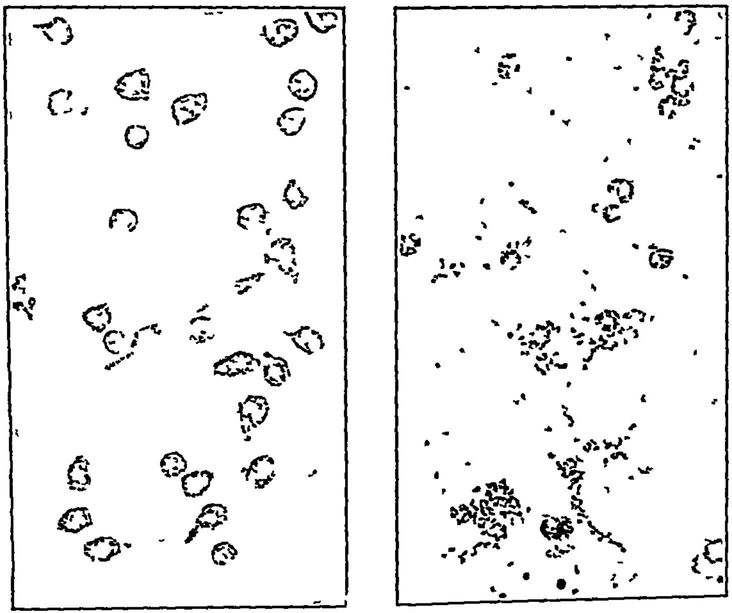
When such precautions as the above are taken inexplicable and contradictory results do not occur Thus when testing the difference of toxicity between P L H kept after centrifuging aerobically and anaerobically respectively If the P E H as obtained was too dilute neither may kill If it was too concentrated both may kill, but if only one proves lethal it is always the anaerobic P L H, and if only minor degrees of damage are forthcoming they always show that the anaerobic is more toxic than the aerobic P L H

In Vitro Tests with Human Breast Cancer.—Only really active encephaloid carcinoma can be grown freely in serum, but from many good vigorous cultures obtained and tested at various times during the past year it is now possible to state that spontaneous human carcinoma reacts in vitro to antibodies similarly to the transplantable tumours of rats and mice Just as antihuman cancer sera kill M 63 and J R S cells in vitro, so do anti-M 63 and anti-J R S sera kill human carcinoma cells, while the serum of H rats is, if anything more lethal in vitro to human than it is to mouse cancer cells, a strong confirmation of the presence of true antimalignant cell bodies in H S (Fig V), for human cancer grows vigorously in normal rat serum

The hope is thus strengthened that if we could cure the transplantable tumours of mice there should be no insuperable difficulty in dealing with the spontaneous tumours of man

Treatment of J R S in Living Rats—The only advance in this direction has been achieved by injecting into J R S tumours the whole blood directly it is drawn from an immunised heterologous animal instead of its serum This manœuvre has the advantage that the injected blood immediately coagulates in and around the tumour and the serum, with its contained antibodies, is localised and gradually expressed by the contracting clot By this means tumours of the feet and also the flank of moderate size (up to a hazel nut or so) can be made to regress sometimes even without constriction of the part Repeated daily injections are generally required in the case of flank tumours, a single inoculation usually suffices for pedal growths Subcutaneous mass ligature close to the tumour of its main axillary and inguinal blood-supply (which has, per se, some curative effect) renders injections of whole antiblood a practically certain cure for a flank growth of moderate size The regression of such a tumour is always followed by absorption of a coexisting tumour of the foot, but the converse does not hold, a flank sarcoma generally continues to grow even after the disappearance of a foot tumour The results obtained in the few attempts made to cure M 63 in living mice by injecting antihuman cancer blood from a sheep into the tumour were much less satisfactory, only two flank tumours regressed out of 30 treated

FRESH PREPARATIONS OF MOUSE CANCER × 200



A

FIG III —Culture of mouse cancer (M 63) originally propagated in normal mouse serum now growing actively in equal parts of serum and of the liquid from the peritoneal exudate (heated) of an immune mouse

B

A similar culture killed by application of heated peritoneal liquid plus a suspension of peritoneal cells from the same immune mouse

The peritoneal cells have reactivated the heated peritoneal liquid, the fresh serum has not

In view of the results obtained in vitro with peritoneal exudates, it is proposed to try whether they will prove curative in vivo They have the advantage of coagulating and also, if drawn after some hours, of containing a high titre of antibodies From the observations recorded above they should be more effective than either serum or blood It may also be possible by means of P E so to damage J R S cells anaerobically outside the body or in the peritoneum of a hyperimmune rat that they may, when inoculated, set up active immunity such as cure of a foot tumour evokes

Discussion

It would obviously be disadvantageous that animals should make antibodies lethal to any of their own tissues, on the other hand, it is well known that they do so to any foreign proteid injected into them How do tumours rank? They pertain to the host in some ways, in others they are foreign to it Their cells live for themselves alone, yet they could not exist but for the stroma which their host provides It is of primal importance to know whether homologous tumours are foreign enough to evoke antibodies in the animals they infest. Animals not infrequently recover from tumours implanted into them How do they manage this? The answer to these questions may best be sought by studying the mechanism of spontaneous recovery Take first an instance where regression always occurs—for example, where a mouse tumour (M 63) is implanted in a rat Here we have the fortunate opportunity of testing in vitro the host's humours on the malignant cells, not only as the latter are originally and in essence, but also when attuned to an unnatural host

It has been shown that M 63 cells removed after seven days' sojourn in a rat live for two to three weeks if cultured in vitro in the same rat's serum, while if left in the rat they would all be dead within three or four days It is clear, then, that in the latter case they do not simply die of inanition (atreptic immunity), but are actively destroyed by some mechanism in the living rat The rat's serum alone is not capable of causing this destruction, for while it kills mouse-grown M 63 cells in vitro, it is quite innocuous to rat-grown M 63 cells It is improbable that simple selection can explain the resistance which these rat-grown M 63 cells show to the rat anti-M 63 bodies, because, if so, we should expect these M 63 cells grown in a rat to be able to survive longer if transferred to a fresh adult rat than unselected M 63 cells from a mouse The reverse is the case As stated above, fresh mouse-grown M 63 cells frequently survive in such a rat and multiply for seven to ten days, while M 63 cells removed from a rat and implanted into another rat die out without any initial period of proliferation Further, if selection were the determining factor it should be possible, by taking the serum of an M 63 rat after it has had time to attain a high titre of antibodies, to kill at least some of the M 63 cells migrating out of a culture of M 63 removed from a rat, say, four days after implantation—i e, before selection had time to act fully This was tested many times, and it was never found possible to destroy in vitro a single M 63 rat-grown cell by applying an anti-M 63 rat serum, although proved to be of very high titre by the rapid way in which it destroyed M 63 cells from the mouse The facts may be interpreted by supposing that by some special means every tumour cell that grows in any animal is specifically protected against antibodies and complement existing in its host's blood serum

The experimental results are consistent with the view that this specific protection is largely a function of the cell membrane

The tests reported above demonstrate two essential facts · (1) Mouse tumour cells growing in a rat evoke specific antibodies in their host, and (2) these tumour cells tend to acquire some protection, some means of resisting the lethal effects of such antibodies.

The evidence for the first of these conclusions is plain and easily demonstrable since we can get rid of the second and confusing element by using M 63 cells not rat- but mouse-grown and so unprotected

These facts suggest the important possibility that animals may even be made to produce antibodies to tumours of their own species (homologous tumours) The observation that H S kills M 63 and human cancer cells shows that it does contain antimalignant bodies It is improbable that these would be produced without some purpose, yet they are not, acting alone lethal to J R S cells Is there a second factor which renders them so ? The evidence points clearly to some secretion or excretion of the extravasated leucocytes when under more or less anaerobic conditions as such an adjuvant factor H S alone does not injure cultures of J R S , H S. + washed P C H does Observation of the cultures shows that the influence of the leucocytes is not phagocytic, death of the J R S cells occurs if the leucocytes are in the same drop of serum, even without actual contact Further, P L H alone kills if drawn after the leucocytes have been given time to excrete their toxic factor into the peritoneal cavity. The conclusion seems justified that the second factor, which, added to that present in the serum of an immune animal causes the death of homologous tumour cells is something exuded by the leucocytes The action is a gradual one, taking several hours to cause death, a delay which is absent in the case of heterologous tissues which are killed almost instantly by the lysins they evoke Thus H S takes six to eight hours to kill J R S cells in vitro, even when adequately supplemented by leucocytic secretion death occurring only after gradual disappearance of the cell membrane while anti-M 63 serum from a rat kills mouse-grown M 63 cells in five minutes or less , in this case the cell membrane remains, but its permeability is profoundly altered The presence in the latter serum of antimouse bodies, as well as antimalignant bodies, and the absence of antirat bodies in H S seems to be the fact which determines this difference Heterologous antispecies bodies can be complemented by the pre-existing complement of normal serum Autogenous antibodies only kill in conjunction with the much less rapidly destructive specific substance produced by extravasated leucocytes It is probable that the leucocytes under the aerobic conditions in the blood-vessels produce a complement lethal to heterologous tissues It appears certain that they only excrete the specific cytase potent against autogenous tissues when they are under comparatively anaerobic conditions

Fresh Preparations of Human Breast Cancer × 300

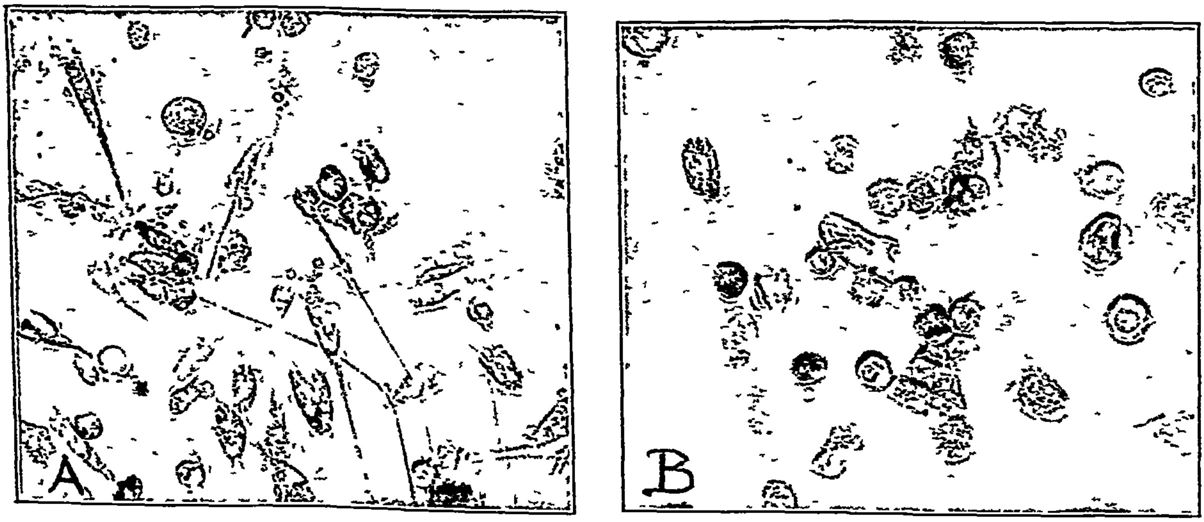


Fig V—A vigorous culture of human breast cancer growing in normal rat serum.

The same field one hour after three applications of the serum of a rat immunised against Jensen's rat sarcoma. All cells dead.

There is some reason to think (two rats whose P L N. was toxic to J R S cells were, when tested later, found to be naturally immune) that by the two factors referred to above natural tumour immunity is managed The humoral factors alone are insufficient, the second leucocytic factor may here also be required. Whether this is applicable to natural immunity as a whole is at present unknown, but the point should be easy to settle

Specificity—It is well known that while recovery from the rat cancer (R 9) protects a rat completely from reinoculations of that tumour, it does not convey adequate protection against J.R S In part this may be a question of titre, since J R S is the more virulent of the two tumours, thus, of six rats hyperimmunised to J R S , all were found completely resistant to R 9, but there is little doubt that there is more in it than this There appears to be a definite degree of specificity in the immunity to any particular tumour The antibodies in H S can be shown to be more or less effective against many varieties of malignant cells, and the natural complement of the blood is also non-specific There remains the special cytase excreted by extravasated leucocytes Here definite specificity can be demonstrated, for while the peritoneal exudate of a rat hyperimmunised to J.R S. tumour drawn after four hours kills J R S cells invariably, it does not kill cultures of M 63 either from the mouse or from the rat Similarly, though the P.E of a rat immunised against M 63 kills rat-grown M 63 cells it does not kill J.R S cultures

It seems then, as hinted above (P C H + H is more toxic than P C N + H), that when an animal has been educated to produce leucocytes which excrete this special cytase it retains a specific facility for repeating the process

When we consider that all these lethal effects were produced in vitro by a single application, we must appreciate how complete the immunised animal's protection must be, for the J.R S cells implanted in it are subjected to a continuous and intensive bombardment by amboceptor and cytase constantly refreshed and progressively concentrated

What, then, are the various results which may follow the implantation of homologous tumour cells into any animal—e g , of J.R S cells into a rat—and how are these results determined ? The possible results are these : (1) The tumour cells may be destroyed and become imperceptible within the first two or three days. (2) They may grow progressively and cause the death of the animal. (3) After a preliminary period of proliferation, natural recovery may take place The experiments above recorded suggest that these results may be determined as follows In all cases the implanted tumour cells become surrounded by fluids and white blood corpuscles from the host's blood and lymph vessels

1 If the rat is naturally resistant or has been immunised, the exuded serum *contains antimalignant* bodies and the leucocytes secrete a specific cytase Together these destroy the J R S cells, and the resultant debris is removed by the phagocytes

2 If the animal is susceptible, the implanted *tumour cells meet with fluids and* cells relatively innocuous to them (cf peritoneal exudate of a normal rat) they survive, and the reaction they induce in the host's tissues results in the production of a stroma and blood-supply which allows progressive growth

3 Where natural recovery takes place, it is probable that as the result of a degree of natural resistance some of the tumour cells die and become absorbed These dying cells are autolysed and their absorption induces an active immunity in the animal, which, in turn, determines the regression of the whole tumour

Conclusions

1 Immune animals inoculated with any transplantable tumour (whether heterologous or homologous) produce antibodies toxic to a wide range of malignant growths

2 The serum alone is, in the case of an animal immunised against a heterologous tumour, lethal to in vitro cultures of the antigenic tumour when sufficient complement is present, but the serum of an animal immunised against a homologous tumour only kills cultures of the antigenic tumour in the presence of leucocytes appropriately conditioned or of some secretion from the latter Thus any malignant cell growing in a rat is, in the absence of leucocytes, quite undamaged by antibodies present in this or any other rat's serum Leucocytes only form their special cytase when extravasated Partial anaerobiosis is probably the factor which determines this

3 The peritoneal exudate (P E H) from a rat immunised against J R S, drawn, say, four hours after a peritoneal injection of J R S *fragments* (or of ordinary broth), always damages or kills in vitro cultures of J R S, but only after a latent period of six to eight hours The peritoneal exudate of a normal rat is toxic only in proportion to the natural resistance of the individual *animal* It often forms an excellent culture medium for J R S cells

4 The clear liquid (P L H) obtained by centrifuging the peritoneal exudate of an immune rat kills as certainly as the whole exudate If this liquid is heated to 56° C for 45 minutes it no longer damages tumour cells It can be reactivated by the addition of peritoneal cells or their secretion, but not by fresh serum even from an immune animal

5 The washed cells (P C H) obtained from such an exudate by sedimentation, together with some of the blood serum (H S) damage or kill cultures of J R S cells Even washed cells from a normal rat when added to the serum of an immunised rat injure J R S cells, though much less severely

6. The immunity of an animal (rat) to a homologous transplantable tumour appears to be due to the combined effect of two factors One of these factors circulates in the blood of an immunised animal and is potentially toxic to many varieties of malignant cells The other factor is exuded by the white blood corpuscles when they have extravasated and are subjected to a low oxygen tension (20 to 40 mm Hg) such as exists in the tissues and spaces of the body Neither of these factors alone is lethal, together they become so, and their toxicity is more or less specific to the implanted tumour which evoked them The most obvious effects they produce (some six to eight hours after their application) are disappearance of the cell *membrane or interface*, and subsequent lysis of the nuclear chromatin Heterologous tumour antisera, on the other hand, contain both antimalignant and anti species bodies, and always kill *rapidly (five to ten* minutes). In this case the cell membrane does not disappear, but its permeability is profoundly altered and chromatolysis follows

7 The tumour cells of all the species studied appear to have something in *common—they* contain a common antigenic substance There is no evidence *that this* substance is a common ætiological factor, it seems more likely to be some cellular constituent common to malignant cells, since by the cytotoxic effects observed the cell itself and not merely its malignancy is destroyed

As on previous occasions, my thanks are due to Prof C J Martin, F R S, for allowing me to work at the Lister Institute, and for continued guidance I am indebted also to many colleagues at the Institute, *and especially to Prof J C G Ledingham*, F R S The British Empire Cancer Campaign, by its grant, has made it possible for me to give my whole time and energy to cancer research. I have to thank my assistant, Miss A C Kohn-Speyer, for her help The staff of the Middlesex Hospital and *Prof* S Russ have again supplied me with human cancerous material

HÆMOPTYSIS OF OBSCURE ORIGIN

A CRITICAL ACCOUNT OF TWO UNUSUAL CASES

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(WITH ILLUSTRATIVE PLATE)

THE two following cases present features of considerable interest, not *only* in regard to diagnosis, but also to the *treatment* I have thought it worth while to publish them together, partly because they appeared sufficiently unusual to place on record, partly as a subject for commentary and as a text for *discussion of the general mode* of procedure in instances of severe hæmoptysis of doubtful origin *In the second of the two cases, that of carcinoma* of the bronchus, the diagnosis was not made during life, and various useful criticisms may be suggested in view of the *post-mortem* findings, in the first, although the treatment adopted was apparently the means of *saving life*, the *exact* pathogenesis of the condition was and still is a matter of uncertainty

CASE 1 —A S, aged 43, male, a jeweller by trade, admitted *on account of* recurrent hæmoptysis

Past Medical History —Twenty years ago had typhus, *no* other definite illnesses, since the age of 10 has had occasional hæmoptyses, but not during the last six years, *no* cough as a rule except at the time of these attacks, the last attack was on June 22nd, 1925, when he brought up a *pint* of blood

Condition on admission (June 23rd, 1925) —General condition *fair*, well nourished, appears somewhat anæmic, slight cough with coloured sputum, no definite physical sign of disease on examination of the chest, ? slight impairment of resonance at the left apex with diminished air entry, no adventitious sounds heard Heart normal, abdomen normal, C N S normal Temperature 99° F A provisional diagnosis was made, "old tuberculous focus left apex" Subsequent examinations of the sputum for T B were negative (three times), the complement-fixation test for tubercle and the Wassermann reaction were negative

June 29th Hæmoptysis, 12 oz, 30th hæmoptysis, 2 oz After this the temperature became normal for a week, and he remained fairly well

X Ray Examination —July 16th (Fig I on Plate) "Heart shadow enlarged in the transverse diameter, lungs streaky, diminished translucency of right apex, restricted movement of right side of diaphragm There is an opacity at the right base, suggesting some consolidation of the right lung" By August 5th the temperature had become steady and the patient was up for the greater part of the day 6th Hæmoptysis, 18 oz (1 P M), hæmoptysis, 4 oz (4 P M)

ON THE NATURE OF IMMUNITY TO IMPLANTED MALIGNANT TUMOURS . .

DR T LUMSDEN

(*Figures* III A, B, *and* V A, B, *are given in the text*)

UNSTAINED CULTURES OF MOUSE CANCER × 1000

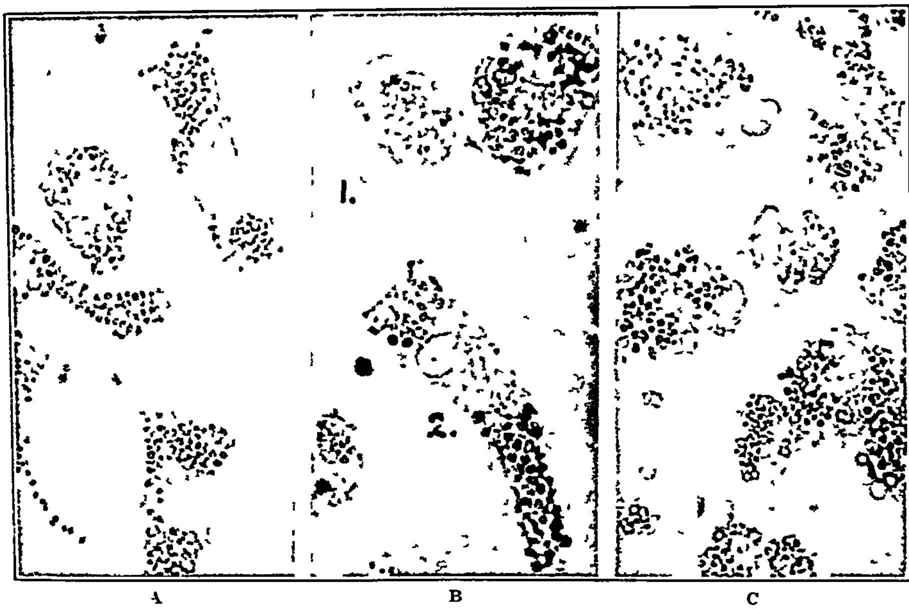


FIG I —A is a culture of mouse cancer (M 63) growing normally in heated peritoneal liquid and fresh serum of an immune mouse Note the clear outlines of the cells and undefined nuclei
B, a similar culture killed by heterologous (rat) anti M 63 serum The fat granules are coarse giving the cells a "ragged" appearance The cell marked 1 shows the characteristic distension of the damaged cell membrane In cell 2 the nucleus has become pyknotic and sharply outlined
C a similar culture killed by application to it of heated peritoneal liquid and a suspension of washed peritoneal cells from an immune mouse The cell membranes have been completely lysed and the whole cell is becoming disorganised

UNSTAINED CULTURES OF RAT SARCOMA × 300

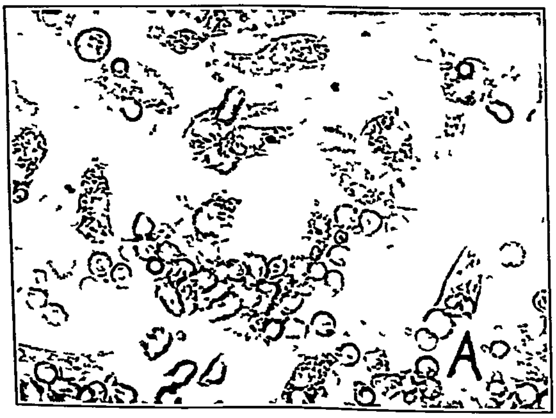


FIG II A —After application of peritoneal exudate from a normal rat Larger and very active cells are sarcoma Small cells some of which are out of focus, are phagocytes

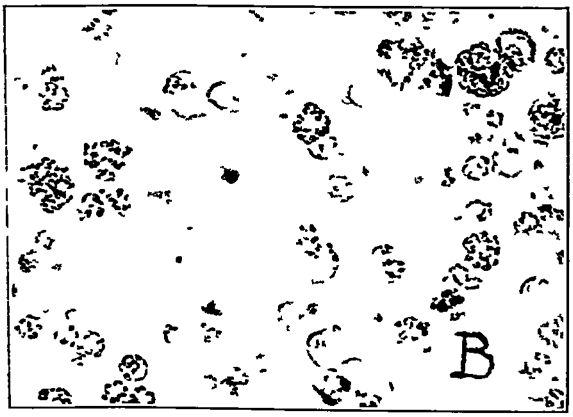
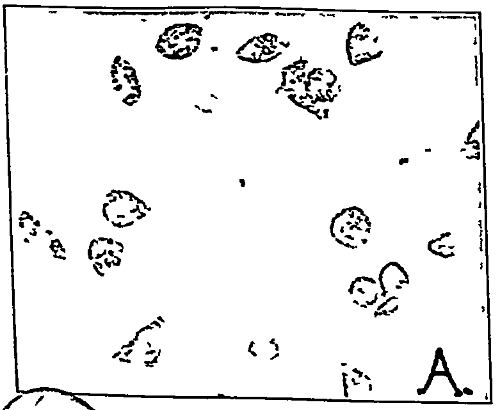


FIG II B —Similar culture in separate drop on same slide after application of peritoneal exudate from a rat immune to sarcoma All sarcoma cells dead and disintegrating



—After application of peritoneal liquid lly prepared) and blood serum from

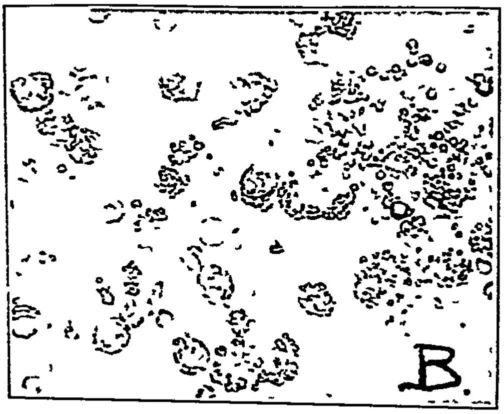
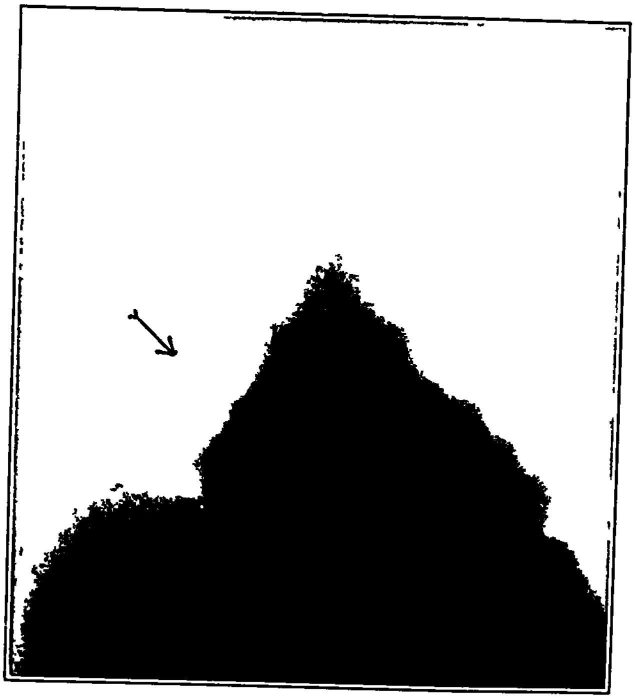
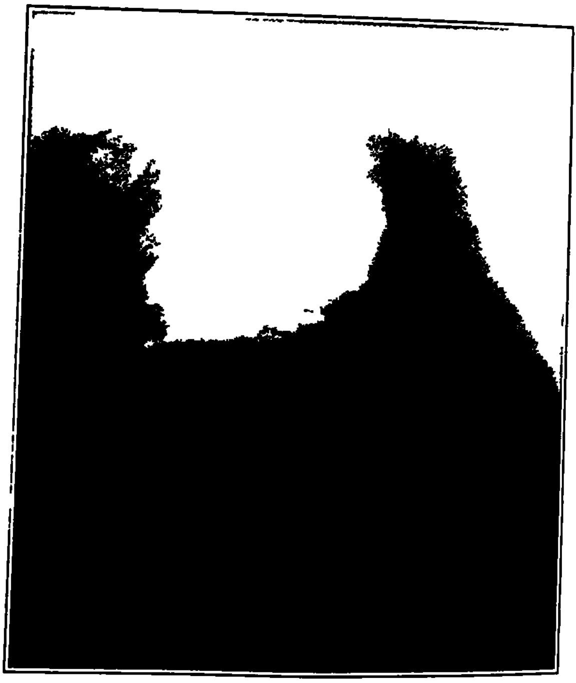


FIG IV B —After application of peritoneal liquid

I





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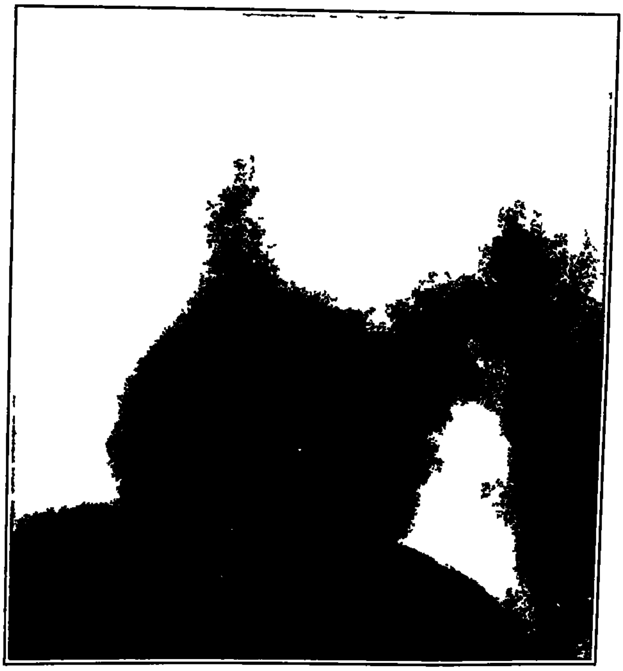

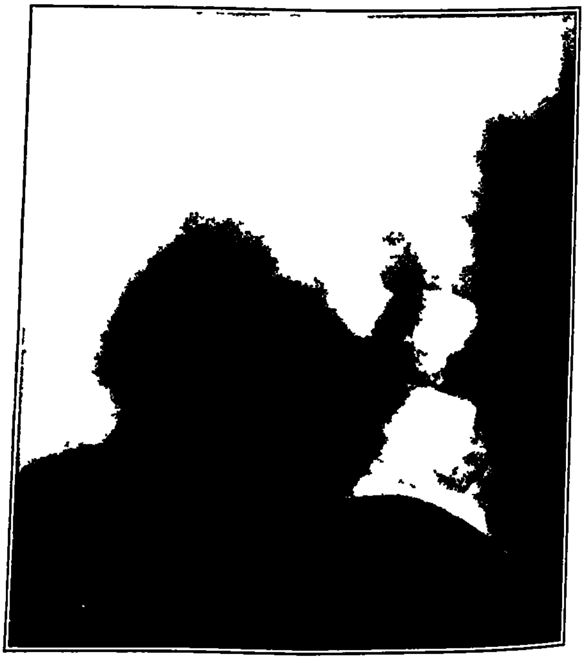

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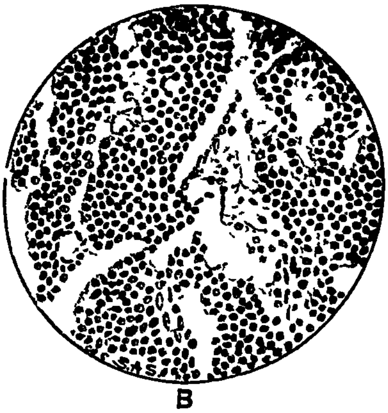
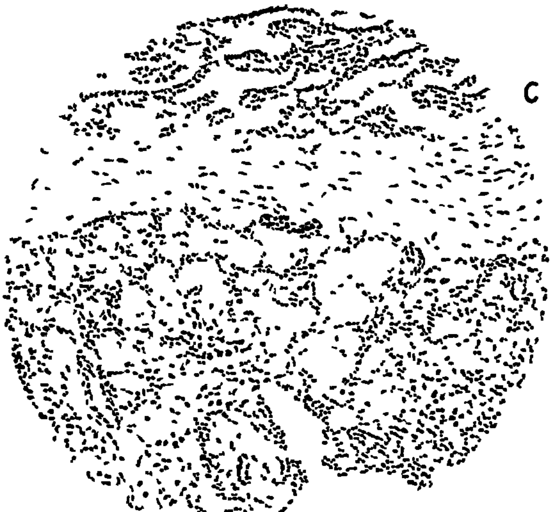
VI





VII

HÆMOPTYSIS OF OBSCURE ORIGIN.

DR M DAVIDSON.

7th Bronchial breathing and fine râles audible at the left base (patient too ill to be examined very completely) 12th Examined in a sitting position fine râles audible at both bases no appreciable difference in the physical signs between the two sides

From the X ray appearances I concluded that the source of the bleeding was in all probability at the base of the right lung, and determined to attempt an artificial pneumothorax on the right side, this was accordingly begun on August 14th

14th	Induction	−10	−8	650 c cm	−3	− 3
15th	Refill	− 8	−0	600 c cm	−3	+ 6
17th	,,	− 5	+3	600 c cm	+3	+10

19th Hæmoptysis, 4 oz (this occurred in the X ray room just after a skiagram had been taken) Morphine was given and later emetine the hæmorrhage appeared to be controlled to some extent but continued in small amounts

21st	Refill	− 4	+3	100 c cm	−2	+9

23rd Hæmoptysis, 13 oz 24th Calcium lactate, dr 1, given by mouth, followed after two hours by injection under the skin of 5 c cm of hæmoplastin in normal saline 25th Hæmoptysis, 2 oz (11 30 A M) hæmoptysis, 4 oz (2 30 P M), a further 4 c cm of hæmoplastin given

26th Ol terebinth ♏ 20 given by mouth every four hours, on the following day the patient complained of pain on micturition, the urine was acid, albumin was found in fairly large amount, pus cells and some epithelial cells being also present 29th Hæmoptysis 8 oz. My colleague, Mr Tudor Edwards, in discussing the question of operative treatment at this stage, advised that avulsion of the right phrenic nerve in the neck should first be tried This was done under local anæsthesia, about 2½ inches of the nerve being removed, the patient stood the operation well

Sept 1st Examination of the chest showed physical signs of a fairly large pneumothorax on the right side, the heart being well over to the left

5th	Refill	−2	+4	200 c cm	−1	+7

5th Hæmoptysis, 1½ oz (11 P M), 11th hæmoptysis, 1 oz

On Sept 15th two severe hæmorrhages occurred, amounting in all to 34 oz, and the patient's condition became very serious Mr Edwards again saw him with me, and in spite of the desperate state of anæmia and collapse we felt that the only hope of saving life lay in opening the chest in the endeavour to discover and deal with the source of the bleeding, which was still thought to be the base of the right lung The operation was performed under gas and oxygen, an incision, 6 inches long, was made along the fifth interspace on the right side, the pleura was incised, and on exploration it was found that the right side of the diaphragm was completely paralysed and was lying up as far as the third rib, being drawn over to the opposite side with each inspiration The right lung was completely collapsed, the base being adherent to the diaphragm and mediastinum It being obvious that separation of the adhesions would not produce any further collapse of the lung, no attempt was made to interfere with them On palpation the base of the lung itself was hard to the touch and presumably fibrous, the upper zone being apparently normal Two nodular excrescences on the liver were palpable through the diaphragm

DESCRIPTIONS OF FIGS VI AND VII

(*See Illustrative Plate*)

FIG VI —Drawing (high power) of tumour cells from area marked B in Fig V

FIG VII —Drawing (moderately high power) from area marked A in Fig I Illustrating glands in the submucosa from which apparently, the growth originated The early degenerative changes could be seen especially in these in the area marked C

The patient's subsequent progress was uneventful, and except for a very small amount of blood brought up on Sept 20th, no further hæmoptysis occurred

Sept 26th	Last refill	−9	−2	300 c cm	−3	+5

Oct 4th The patient complained of nausea and vomiting with pain and tenderness in the right loin, the urine was found to contain large quantities of oxalate crystals This attack passed off and he made an uninterrupted recovery

Examination of the chest on Sept. 29th showed a hyper-resonant percussion note on the right side in front, with dullness below the level of the sixth rib, breath sounds were absent over the upper part, but could be heard faintly at the base, the heart was displaced to the left At the back, weak breath sounds were audible in the upper third on the right side, over the lower two thirds of the chest there was dullness with absence of breath sounds, ægophony was present just above the level of dullness

On Oct 31st the physical signs were those of fibrosis of the base of the right lung, all signs of fluid having disappeared, and the air in the pleural cavity having been absorbed There seemed to be no necessity for giving any further refills The patient was sent to a convalescent home for a few weeks after which he returned home When last seen on March 18th, 1926, he appeared in perfect health, beyond slight dullness and weakness of breath sounds at the right base there were no abnormal physical signs in the chest

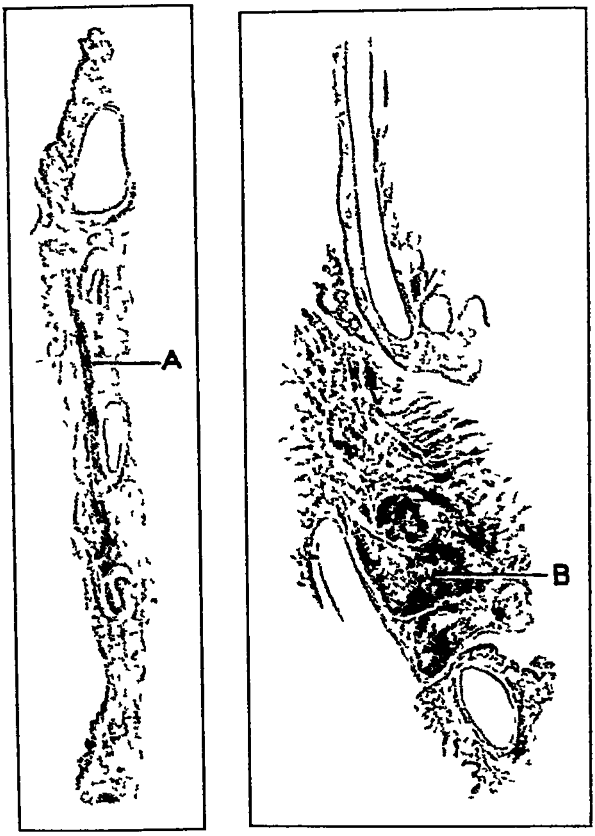


FIG V —Drawings (low power) of longitudinal section of a bronchus B shows tumour projecting from the wall into the lumen

The last X ray (Fig II on Plate) shows the right lung practically decompressed, the diaphragm is high in position, there is no evidence of any fluid

Since writing the above notes I saw the patient again on Nov 1st, 1926 He was still in excellent general health and had had no return of symptoms

CASE 2 —T D, aged 29, male, admitted under Dr Cecil Wall on account of attacks of hæmoptysis

Past Medical History —1915 Rejected from Army because of alleged heart disease 1918 Influenza (*sic*), in bed for five weeks 1919 Bronchitis, in bed for six weeks 1920 Influenza (*sic*), in bed for four weeks 1921 Pleurisy (left side) 1924 Admitted to the Royal Free Hospital with a "heart attack" (dizziness, fainting &c), and while there had a slight hæmoptysis, sent to convalescent home and then returned to work In April 1925, had numerous small hæmoptyses while at work In June, 1925, hæmoptysis, 10 oz, again admitted to the Royal Free Hospital, sputum examined there on three occasions for T B with negative result, transferred to Brompton On admission he was complaining of slight cough with a certain amount of frothy sputum, and occasional pain in the left side of the chest

Condition on Examination —General condition good well nourished Some diminution of movement of the left side of the chest with slight dullness below the clavicle, marked dullness at the base of the left lung in front and behind, with diminished breath sounds vocal resonance, and tactile fremitus, some rhonchi audible on both sides There was no enlargement of the heart, the apex beat was felt in the fourth interspace where a musical systolic murmur was audible, there was some *irregularity of the cardiac rhythm*, due to the interpolation of numerous extrasystoles, apart from the premature ventricular contractions shown in leads I and III, the electrocardiogram was normal Blood pressure 135 (systolic), 100 (diastolic) Examination of the blood gave a doubtful Sigma reaction, the Wassermann and the complement-fixation test for tubercle being negative Three sputum examinations for T B were negative, no mycelium was found, cultures grew *Staphylococcus albus* only

X Ray Examination—Sept 19th (Fig III on Plate) "Heart globular in shape, left border ill-defined, *left side of chest* diaphragm not adherent, but excursion somewhat restricted Relatively lessened translucency at extreme base of the lung, above this is an area globular in shape but of varying density, ? localised consolidation, breaking down, ? localised empyema, ? bronchiectasis"

During the time he was in hospital he remained practically afebrile, with occasional evening rises of temperature to 99°, on several occasions the sputum was coloured, small clots of blood being coughed up mixed with frothy sputum, *the amount of sputum averaged 1 oz per day*

Nov 8th Hæmoptysis, 1 oz 28th X ray examination after introduction of lipiodol *into left bronchus* "No obvious bronchial dilatation, lipiodol appears in a somewhat dense mass, the suggestion being *that there is still* consolidated and fibrous lung, outline of left border of heart obscured"

His general condition improved and he put on 6 lb in weight, no further hæmorrhage having occurred, he was discharged to a convalescent home While at the home he had a severe hæmoptysis of 25 oz, he returned to London after a short interval and was again seen in the out-patient department, the physical signs in the chest were the same as on the first examination, he showed a good deal of pallor

On readmission to hospital it was thought that the introduction of some air into the left pleural cavity might assist the radiologist in his interpretation, and a pneumothorax was induced on March 9th

Jan 9th, 1926	−15	−10	350 c cm	−7	−2
„ 10th „	−13	− 3	200 c cm	−8	−0
„ 11th „	− 8	− 0	200 c cm	−6	+2
		(Hæmoptysis 2 oz)			
„ 12th „	−10	− 2	250 c cm	−8	+1
„ 13th „	−12	− 1	250 c cm	−6	+2

X Ray Examination—Feb 25th (Fig IV on Plate) "*Left lung*—partial collapse, heart apparently not displaced but still globular, the opacity previously noted is no longer seen, thought this may be because it has collapsed, adhesions to chest wall visible"

After the last refill the sputum was free from blood but was somewhat increased in amount, the average being about 5 oz per day, no T B were found after repeated examinations The total leucocyte count at this stage was 5800 per c mm, the differential count showing polymorphonuclears, 73 5 per cent, small lymphocytes, 17 5 per cent, large lymphocytes, 6 per cent, hyalines, 1 per cent, eosinophiles, 2 per cent

The refills were continued at intervals until Feb 10th, when the interior of the chest was explored by means of thoracoscopy The lung surface as seen through the thoracoscope was apparently normal except for a few very fine adhesions, there was no evidence of any extra-pleural tumour formation In view of the increasing amount of sputum during the past few weeks, Mr Edwards, who had seen the patient on the first occasion, agreed that it might be of advantage to paralyse the left half of the diaphragm, and on March 17th avulsion of the left phrenic nerve was performed The nerve consisted of two divisions, one very small, these were removed (about 3 inches in all) A refill of 800 c cm was given on March 21st, and on the 23rd, following a sudden fit of coughing, a large spontaneous pneumothorax occurred, the patient became greatly distressed and cyanosed, and complained of much pain Every attempt was made, by withdrawal of air from the chest on successive occasions, administration of small doses of morphine, stimulants, &c, to tide him over the shock, but his condition became rapidly worse and he died on March 24th

Post-mortem Examination—The heart and great vessels were found to be normal The liver was bulky and finely nodular on the surface, but on section showed no evidence of cirrhosis, microscopic sections showed only slight cloudy swelling The spleen was large, pale, and friable

Lungs The right lung appeared normal, the left lung was collapsed and congested, and was connected with the thoracic wall by one or two tough bands of adhesions On section no gross fibrosis was apparent, although there was a slight increase in excess of the normal fibrous tissue On cutting through the bronchi longitudinally, so as completely to expose the larger divisions, a tumour was found in the first upper division of the left main bronchus For the following detailed description of this, as well as for the microphotographs, I am indebted to my friend and colleague, Dr Norman Ball

"To the naked eye this tumour had the appearance of a simple papilloma covered with blood clot On cutting through it, it was seen that the base was infiltrating the wall of the bronchus, and there was a whitish colour in the deeper parts which suggested new growth. A longitudinal section of this bronchus was made, including both walls of the bronchus and the tumour in the middle of one wall (see drawings in Fig V), the tumour projected into the lumen of the bronchus, partially blocking it, there was no bronchiectasis in the area supplied by this bronchus Microscopically, the tumour is a spheroidal celled carcinoma The cells are rather smaller than usual in this type of tumour but they appear to me to be slightly necrotic The nuclei stain very deeply and the protoplasm is poorly stained In fairly large areas there is very obvious necrosis with karyolysis and breaking up of the protoplasm The tumour is purely local, sections of the neighbouring parts of the lung being quite free from growth There is a fair number of fibroblasts present in and about the tumour"

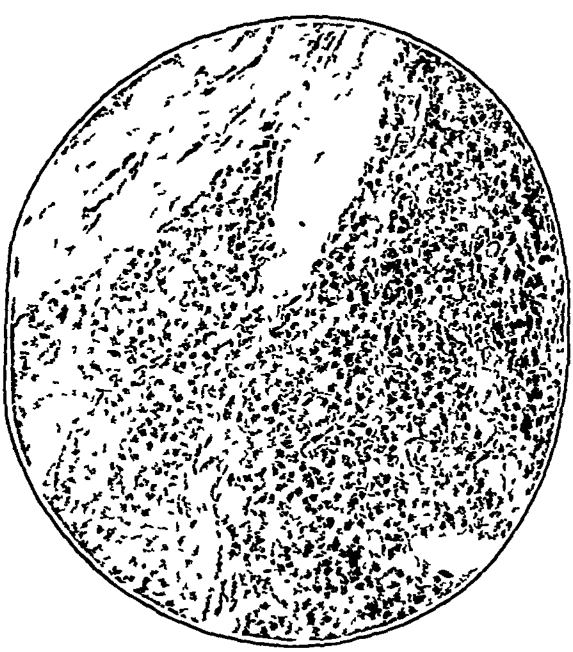


FIG VIII—Actual microphotograph showing a highly magnified view of the tumour

Commentary

The following comments may be made at this point

In Case 1 it will be noted that no attempt was made to X ray the patient after injection of lipiodol The sole reason for this omission was the gravity of the man's general condition and the fear of causing further hæmorrhage by any avoidable movement It is to be regretted that this was not possible as it might have furnished valuable evidence as to the nature of the opacity seen in the first skiagram (Fig I) It was supposed that a small cavity existed in the area indicated by this opacity and that the bleeding came from an arterial branch in the neighbourhood There was nothing in the previous history to suggest any reason for the development of bronchiectasis, and it seems difficult on the face of it to suppose that a bronchiectasis, even of limited extent, which was sufficient to cause hæmoptysis would not have been attended by other symptoms usually associated with the condition The only evidence in favour of early bronchiectatic disease is afforded by the screen examination which showed restriction of the movements of the diaphragm on the right side, a point which is suggestive but not conclusive

As regards Case 2, the obvious point raised by the post-mortem *findings* is the fact that no bronchoscopic examination was made of this patient and that, had this been done, it is possible that the tumour might have been seen by direct vision. The occurrence of the spontaneous pneumothorax is a little difficult to understand. The immediate cause must have been rupture of the lung owing to sudden tension on one of the adhesions which were known to be present The origin of these was presumably an attack of pleurisy from which he was said to have suffered about four years previously The last refill of 800 c.cm given four days after the operation on the phrenic nerve was undoubtedly a large one, but the resulting pressure was not unduly high, although there may perhaps have been a sudden increase in the intrapleural pressure during the fit of coughing which preceded the rupture The radiological appearances in this case are extremely difficult to interpret The skiagrams taken after introduction of lipiodol were not very good films and have not for that reason been reproduced here, but the report of Oct 28th, 1925, should be noted in which it appeared that there was still some consolidation of the lung The only publication I have been able to find that has any bearing on the point is a most instructive paper by Golden, of New York,[1] upon the effects of bronchostenosis upon the Rontgen ray shadows in carcinoma of the bronchus, in which the author demonstrates the changes which may take place in the lung shadows during the course of primary bronchial growths He points out that the hazy, ill-defined shadow seen about the hilum during the stage of invasion may be replaced, as the effects of bronchostenosis begin to manifest themselves, by a dense homogeneous shadow, sometimes accompanied by displacement of the heart and trachea to the affected side Such shadows he considers, are due to atelectasis of the corresponding lobes with associated bronchial and pleural changes and not to the tumour itself. The article is admirably illustrated, and two of the skiagrams shown (Figs. 8 and 9, p 24 loc cit) afford an interesting comparison with Fig. III. of the X rays here reproduced

Differential Diagnosis and Treatment.

I am frequently asked for an expression of opinion as to what should be the general mode of procedure in cases of repeated hæmoptysis in which the cause of the condition has not been established While it is obvious that there can be no golden rule in a matter of this sort and that the details of treatment must necessarily depend upon the diagnosis, there are, nevertheless, problems of a sort afforded by the two foregoing cases in which it seems desirable to formulate in one's mind some sort of general principle in regard to the appropriate order of investigation Into all the recorded causes of hæmorrhage from the respiratory tract it is impossible to enter here. We are concerned for the moment with the type of case in which history and clinical examination have excluded the question of pulmonary *tuberculosis and morbus* cordis as well as those rarer hæmoptyses associated with some general hæmorrhagic disease, and in which the trouble is apparently due to some localised lesion below the larynx The two extra sources of information on which the clinician is largely dependent are the X rays and the bronchoscope, and so far as it is possible to lay down any rough rule for guidance, I would suggest that the investigation should be in the following order First, the complete clinical examination · secondly, X ray examination ; thirdly re-examination by X rays after introduction of lipiodol: and lastly, bronchoscopy The value of lipiodol injection as an aid to radiological diagnosis cannot be overestimated · the technique does not offer any great practical difficulty, and provided the patient's condition does not render absolute rest imperative the use of this method does not appear to be attended with any untoward results The outlining, by this means, of small cavities which cannot be demonstrated in an ordinary skiagram is very definite, and has been strikingly shown in many cases of early bronchiectasis The importance of bronchoscopy in relation to clinical medicine does not appear to be sufficiently appreciated in this country. Chevalier Jackson[2] mentions as one of the indications for bronchoscopy "the appearance in the radiograph of a foreign body *or of any suspicious shadow*" (my italics), and refers to cases of persistent blood-spitting in which endoscopy may afford the only means of deciding the source of the hæmorrhage. It would seem a justifiable principle that in such instances bronchoscopic examination should be made in every case in which no obvious contra-indication exists. Assuming that the source of the bleeding has been localised within the substance of the lung the treatment in most cases resolves itself into a choice of one of the recognised methods of collapse therapy if the hæmoptysis is of such severity or persistence as to render such active interference necessary. Apart from the value of artificial pneumothorax therapy as a mode of controlling pulmonary hæmorrhage it has an additional importance from a diagnostic point of view; the interpretation of a shadow in the skiagram of doubtful significance may be rendered easier by introduction of air into the pleural cavity especially in cases where the question of new growth has arisen The value of diaphragmatic paralysis by phrenicotomy or by evulsion of the phrenic as a mode of treatment is open to criticism, but the method has the advantage that it may often give results which, though insufficient in themselves as a therapeutic measure, yet afford information and give a lead to the surgeon in cases in which the question of a major collapse operation is under consideration

For the X ray reports and for much valuable advice and coöperation I am indebted to my colleague Dr. Stanley Melville

INTRAVENOUS INJECTIONS OF GENTIAN VIOLET IN THE TREATMENT OF RHEUMATIC CARDITIS

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The value of intravenous injections of gentian violet in the treatment of various blood infections has been studied extensively in recent years in America, but it seems to have been entirely neglected in this country At any rate, as far as the writer is aware, there is no record in our medical literature of the employment of the dye in this manner, though it has been used for the external treatment of septic wounds skin conditions &c.

It has been known for long to have a selective bactericidal action on staphylococci and streptococci, and for this reason I was induced, at the suggestion of Dr G Bourne, of the East London Hospital for Children who had previous experience of the drug to use it in the treatment of rheumatic carditis The assumption that rheumatic fever is one of the coccal group of infections is of course not universally accepted so that the treatment must be regarded as largely empirical.

Historical Note

The action of gentian violet in damaging certain tissues was known many years ago but it appears that Cornil and Babes[1] first found that it possessed a like injurious action on bacteria (1890) Stilling,[2] of Strassburg, published a thesis on the subject: he found the dye a powerful bactericidal agent but failed to find any selective action It was heard of again in 1902, when Drigalski and Conradi[3] discovered that, while it inhibited the growth of cocci and *B coli*, it seemed to have no such effect on *B typhosus* The potential value of the dye in therapeutics was neglected, however, until Churchman began to experiment with it in 1910 He found[4] that the dye is a bacteriostatic rather than a bactericidal agent—i e, it inhibits or retards the growth of bacteria, rather than kills them outright Working with Herz in the Yale Laboratories, he experimented with the dye on rabbits from the point of view of toxicity and bacteriostasis His series[5] of injections falls into two groups in the first group the dye seemed to produce no effect on the animals even when circulating in the blood in a 1/2500 dilution, while in the second group, with the same dosage, all the rabbits went into violent convulsions and rapidly died in opisthotonos Autopsy was usually negative, or, in some cases, showed acute pulmonary œdema Obviously the toxicity of the drug was not the cause, as the same dose was used in all cases, more probably, the rate of injection, resulting in sudden increase of the volume of the blood, is the explanation of the fatalities In the course of the next 10 years Churchman published the results of further experiments with the dye, he produced[6] blood infections in rabbits, and by intravenous injections of gentian violet rendered the blood cultures negative In his most recent article[7] he concludes that, while it is not yet possible to produce a therapia sterilisans magna by these injections, it inhibits the multiplication of bacteria, and thus enables the body fluids and tissues to gain the upper hand As to dosage, it was found that 10 mg per kilo body-weight, given slowly, did not kill, but if the doses were repeated, death was produced at the third or fourth injection

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[1] Golden R Amer Jour Roentgenol, 1925 xiii. 21

[2] Jackson, C Peroral Endoscopy and Laryngeal Surgery, 1915

The dye was first used[8] on the living subject as an intravenous germicide on July 12th, 1923 The patient had purple vision for six hours, the urine had a blue tint for 24 hours, but no toxic effects were observed, and some improvement followed The second case[9] reported was a child of 15 months suffering from staphylococcal septicæmia with multiple abscesses Three injections were given at intervals of 24 hours, the leucocytosis diminished, the blood cultures were rendered negative, and the child made an excellent recovery Young and Hill published two more cases in the same paper, both suffering from staphylococcal septicæmia, and in both instances the blood was rendered sterile, and general improvement ensued Thereafter gentian violet became reputed in America as a valuable blood antiseptic, and was employed in a great variety of conditions, generally with favourable results Royston[10] found it of some value in streptococcal meningitis, Major[11] used it successfully for subacute infective endocarditis, while Blake[12] combined it with mercurochrome in a case of staphylococcal septicæmia with great success

Both Major and Shallenger[13] report severe cellulitis following spilling of the dye into the subcutaneous tissues with considerable necrosis, and remark that solutions of 1 per cent or over cause thrombosis of the vein at and above the site of injection Hinton,[14] in May, 1925, found the drug of decided value as an adjunct to surgery for staphylococcal septicæmia with osteomyelitis, &c, and recommends its use in similar conditions On the other hand, Brill and Myers[15] published five cases of staphylococcal septicæmia and *B coli* infection, all of which were uninfluenced by the drug and ended fatally The latest publication is by Visher,[16] who treated three cases of encephalitis lethargica and one of chorea with the dye; all four cases were becoming rapidly and progressively worse, and the sudden change on injection impressed him so much that he strongly advised further trials of the drug

Selection of Cases and Methods

When the writer decided to use gentian violet for rheumatic fever, great care was taken that the type of case chosen was such that any effect due to the drug would be fairly easily demonstrated Suitable cases are all too common in children, characterised by smouldering fever, persistent tachycardia, nodule formation, loss of weight, progressive carditis, and lack of response to the usual specific treatment In all the cases selected a fair trial had been already given to the usual measures without definite improvement, and although we know that the rheumatic fires do burn themselves out in favourable cases, any rapid improvement was regarded as being due to the dye

The first difficulty was to obtain a sample of the dye suitable for intravenous use In the first four cases Grubler's preparation was employed, it consists of equal parts of gentian and methyl violet with some dextrin (up to 50 per cent) In the next six cases the sample injected was specially prepared for intravenous use by Dr Martindale, and was practically free from dextrin and metals Injections of both preparations were given to guinea-pigs by Dr S Roodhouse Gloyne at Victoria Park Hospital to determine the effect (1) of single large doses, (2) of repeated smaller doses It was found that as much as 12 mg per kilo body-weight as a single dose, and 5 mg in repeated doses, could be injected without producing any obvious toxic effect—i e, the dye can with safety be in the blood in a dilution of 1/70,000, taking the fluid content of the body to be 70 per cent of the body-weight Churchman and Russel[17] have shown that so low a dilution as 1/20,000 has no obvious effect on growing tissues, while a 1/1,000,000 dilution inhibits the multiplication of staphylococci indefinitely, so that there is a considerable margin of safety in therapeutic doses For the first ten injections into the human subject sterile normal saline was used to dissolve the dye, but as the salt seemed to interfere with the solubility, sterile tap-water was employed thereafter The same dilution—0 25 per cent—was used throughout the series; this dilution does not seem to possess the irritating and destructive effects of the American preparations, for doses up to 5 c cm were injected into the subcutaneous tissues of guinea-pigs without cellulitis resulting, nor was any local effect noted from upwards of 50 injections given to the patients, all of whom, but one, were under 14 years of age The funnel and rubber-tubing method was preferred to the syringe, and only once was it found necessary to cut down upon the vein

Clinical Histories

A brief summary of the histories of seven cases of rheumatic carditis treated by intravenous injections of gentian violet follows —

CASE 1 —D S, a girl, aged 11, suffering from acute rheumatic carditis, had a history of repeated attacks of rheumatic fever and pericarditis two months previously, she made a partial recovery, but nodules appeared on elbows and knees in quick succession Temperature, 97 9°–101° F Pulse-rate, 120–140 Signs of aortic and mitral regurgitation Salicylates failed to affect temperature or pulse rate On April 2nd, 1925, she received 30 c cm of 0 25 per cent solution of gentian violet (Grübler)—i e, 5 mg per kilo body-weight Forehead, lips, and ears were of bluish tint for two hours, temperature was not affected, but pulse-rate fell to 80 next morning, and remained within the 80–100 range A week later 40 c cm were given, frontal headache, restlessness, and insomnia followed, and lasted for several hours, but no untoward symptoms were noted The dye appeared in the urine half an hour after injection, reached the height of output in three hours, and only a faint trace was visible after 24 hours By colorimetric methods it was determined that only 0 75 per cent of the amount injected was excreted in the urine unchanged, the rest being either oxidised or reduced, or stored up in the body tissues Two further doses at intervals of a week were given, the temperature gradually came down to normal, the pulse-rate remained at a low level, the nodules rapidly disappeared, and the patient began to gain weight She was sent to a convalescent home within a month, with a quiet, regular heart and the disease apparently quiescent

CASE 2 —H W, a girl, aged 8, admitted to hospital suffering from rheumatic pericarditis, with large doses of salicylates, the acute symptoms disappeared, but the temperature remained raised (99°–100 5° F) while the pulse-rate never fell below 100 After ten weeks of smouldering fever, during which 30 or more nodules appeared, it was decided to use gentian violet The effect was striking; patient felt chilly one hour after injection, and two hours later the temperature rose by 1½° Next day it fell to normal and remained so for 23 days, the pulse also maintaining a lower level Then slight pyrexia reappeared, and another three injections were given when similar effects were produced The patient did very well and was discharged with the infection apparently arrested

CASE 3 —C R a Jewish boy, aged 9, had subacute rheumatic fever which failed to respond satisfactorily to salicylates The tonsils and adenoids were removed, and immediately the temperature and pulse-rate reached a higher level—averaging 100 2° F and 120 per minute respectively On August 2nd 1925 five weeks after tonsillectomy 40 c cm of gentian violet solution were given The initial chill was followed by a rise of temperature, which next morning fell to normal and remained so for several days On showing a tendency to recrudesce, another injection was given with similar results, the temperature and pulse-rate remained normal, and the patient was discharged to a convalescent hospital shortly afterwards, greatly improved

CASE 4 —W G a Jew aged 13 years, admitted with rheumatic arthritis in a few days developed pericarditis He improved somewhat under the usual measures, but temperature and pulse-rate remained raised, and in the course of a few weeks nodules appeared on elbows and knees Injections of 5 per cent solution of sodium nucleinate were given and raised the leucocyte count from 17,000 to 32,000 cells per c cm, but no appreciable improvement was observed On Sept 4th 1925, 40 c cm of gentian solution were injected, a chill lasting half an hour was followed by a rise of temperature (100 5° F) which disappeared next morning The temperature rose during the day and remained high After an interval of two days another injection was given, definite shivering and bradycardia (60) were followed by pyrexia (102 5°) which disappeared next morning, and the temperature remained down for two days On pyrexia reappearing another injection (50 c cm) was given with like results, but the temperature refused to settle permanently and the injections were discontinued. This patient subsequently received a vaccine obtained from a patient who died of rheumatic carditis, with gratifying results This is the only instance in which gentian violet failed to influence the course of the disease

CASE 6 —J D, a boy, aged 9, came under observation suffering from rheumatic pancarditis, he was pallid, puffy, dyspnœic, and slightly cyanosed The signs pointed to pericarditis with left-sided pleural effusion, improved under usual measures, but a relapse occurred and condition became critical, dyspnœa and cyanosis reappeared, legs and chest wall became œdematous, anorexia and intractable vomiting seemed likely to usher in a fatal termination, when a small dose—30 c cm.—of gentian violet solution was given. It was considered inadvisable to inject more fluid at one time into the circulation on account of marked cardiac dilatation In all, six injections were given, one had to be stopped half way through on account of vomiting This was the only case in which difficulty was experienced with the later injections on account of thrombosis of the arm veins The patient improved slowly, but ultimately made an excellent recovery

CASE 9 —E P, a girl aged 10, was admitted suffering from her third attack of chorea, the heart showed the early signs of mitral stenosis nodules appeared on both elbows, and while there was little or no fever, the pulse was persistently accelerated She received four doses of gentian violet at intervals of a week, there was an appreciable reaction on only one occasion, but the pulse-rate gradually lowered and the infection seemed to quieten down from the injections. She was discharged without any symptoms, and with a quiet and regular heart

CASE 10 —M A, a girl aged 5 years, with a history of rheumatic infection for over a year, showed subcutaneous nodules on elbows and knees, a deformed chest wall a loud presystolic murmur with marked thrill, and definite rib-recession on systole She was somewhat dyspnœic and showed marked bronchitic signs A small dose—25 c cm — of gentian violet was injected into the median basilic vein On withdrawing the needle the child was observed to collapse the eyes became staring and were rotated upwards and to the right, the face became blue and congested the jaw was fixed and the limbs went into convulsive movements The vein was opened immediately with a scalpel, but the flow of blood was disappointing the breathing stopped and the pulse became imperceptible The external jugular veins were noticed to bulge and the right vein was opened Violet-blue blood flowed copiously, and about 30 c cm were removed The result was immediate and striking, the twitchings ceased, respiration was resumed and, in a minute or so the patient was crying vigorously The wound healed rapidly and the patient seemed to improve for a short time, but died six weeks later from cardiac failure

This experience recalls the results of Churchman's injections in rabbits of the second group, and probably the same explanation holds good That the collapse was due to the sudden increase of fluid in an already weakened heart is supported by the rapid recovery consequent upon removal of that fluid On the other hand, there is some evidence that a "shock" reaction, somewhat similar to protein shock, may be produced by introducing non-protein substances into the circulation The question of impurities as the causal factor has been studied in connexion with the use of salvarsan and its allies It is well known that a similar reaction is occasionally produced when 606 is prepared with tap-water, and absent when distilled water is used In the instance just described tap-water was employed, as in upwards of 40 injections given to some of the cases in the series This is the only case in my series in which definitely toxic effects were observed, but I have been informed that fatal results have followed the use of gentian violet in similar conditions In the cases in question the prognosis as to life was hopeless, but the employment of the dye undoubtedly precipitated the fatal issue, apparently by acting as a protoplasmic poison Some caution should therefore be exercised in the dosage of the drug and the type of case treated, though the American literature does not seem to contain a hint of possible risk

Summary and Conclusions

1. The available literature (entirely American) on the use of intravenous injections of gentian violet is reviewed and the results examined

2 Details are given of seven of my ten cases of rheumatic carditis treated by gentian violet

3 The failure of tonsillectomy or so-called specific treatment to prevent or control the rheumatic infection is clearly shown

4 With moderately careful technique, the method is safe and easy, and leads to few, if any, ill-effects; thrombosis of veins occurred in two cases, vomiting in one; no instance of cellulitis or sepsis was encountered

5 Of my ten cases, eight were definitely improved, one was apparently uninfluenced, while one case did not receive a fair trial

6 From an examination of the results, it may be reasonably concluded that gentian violet opens a more hopeful future in the treatment of blood infections, and is worthy of a more extended trial

All the cases were in-patients of the East London Hospital for Children, or of Victoria Park Hospital, and the writer begs to acknowledge here his thanks for the encouragement and consideration which the honorary staff invariably showed him, and for their kind permission to publish these cases

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THE LATE DR G M HIRONS —The death is announced of Dr George Merriman Hirons at Bournemouth, at the age of 82 Dr Hirons was educated at the Anderson College and the University of Glasgow and took the Scottish triple qualification in 1872 He held appointments as resident physician at the Glasgow Royal Infirmary and as house surgeon at Teignmouth Infirmary On going into practice at Bournemouth he became one of the first magistrates appointed for the county borough and was later elected mayor

Clinical and Laboratory Notes.

A CASE OF MENINGITIS

WITH EXAMINATION OF THE CEREBRO-SPINAL FLUID

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AND
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BIOCHEMIST TO THE HOSPITAL

The record of this case is of interest on account of the fairly complete examination of the cerebro-spinal fluid removed by lumbar puncture

The patient, a boy of 18 and a barber by trade, was admitted to the Devonshire Hospital, Buxton, on April 21st, 1926 He gave a history of having had an attack of influenza ten weeks previously After recovery the knees became painful and swollen, red painful nodules appeared on the limbs, and he had to return to bed He had been going about for some three weeks before admission to hospital

On examination he complained of stiffness in the knees and feet, of pain on walking, and of painful red nodules on the arms and legs He was an anæmic, overgrown youth , the muscles of the left calf were tender to pressure , there was a mucopurulent discharge on the posterior pharyngeal wall , and the urine contained a trace of albumin He was sent into hospital with a diagnosis of post-influenzal rheumatism

After a week of routine hydrotherapeutic treatment the patient complained of increased pain in the arms and legs His temperature was found to be 99° F and he was put to bed During the next few days the temperature ran a very erratic course, one evening being as high as 104°, and although he was slightly drowsy and showed a slow reaction-time he felt fairly well and wished to get up On May 5th he had persistent headache and vomited twice The next day he developed photophobia and stiffness of the neck and Kernig's sign was present By lumbar puncture 45 c cm of turbid fluid were obtained which gave a cell count of 40,000 per c mm with about 90 per cent polymorphs Samples were submitted to the pathologist who reported them to be sterile

Antimeningococcal serum was given intrathecally, about 260 c cm being given in all Lumbar puncture was done twice daily for ten days and then once daily for nine days On May 12th there was marked papillœdema and the patient was in a semi-comatose condition with definite head retraction One to two pints of saline were given daily by the subcutaneous method The patient began to improve and after many relapses became quite clear mentally with a steady temperature He was discharged on June 15th No meningococci were detected in a throat swab and the Wassermann test gave a negative result

On August 28th his doctor reported that he showed no signs of meningitis He was then still in bed, very thin, and had contracted knee-joints which were loosening under treatment At the present time (January) his condition is materially the same He has a definite arthritis but no meningeal symptoms

An analysis of the cerebro-spinal fluid gave the following results

Analysis of Cerebro-spinal Fluid

Date	Total nitrogen	Uric acid Benedict	Urea nitrogen	NaCl	Glucose	Inorg phosp	Calcium
—	%	mg %	mg %	mg %	%	mg %	mg %
May— 10th	0 090	1 66	11 4	575	0 035	3 77	6 98
11th	0 171	1 74	12 5	595	0 040	3 25	8 35
12th	0 278	2 20	14 1	645	0 042	4 87	7 75
13th	0 202	2 27	13 5	640	0 043	5 36	7 02
14th	0 157	2 07	13 0	640	0 040	5 40	7 15
15th	0 089	2 13	14 8	655	0 040	5 77	7 02
16th	0 089	2 42	12 9	635	0 038	4 65	7 02
17th	0 122	2 07	10 3	610	0 025	4 62	6 82
18th	0 132	1 70	9 6	620	0 027	5 13	6 75
19th	0 072	2 00	12 6	630	0 028	4 43	6 60
20th	0 155	2 14	11 5	570	Trace	4 28	6 54
22nd	0 059	1 88	11 1	650	0 048	4 15	6 06
24th	0 063	1 84	10 9	600	0 045	5 27	5 86
28th	0 044	2 08	12 6	570	0 061	5 54	6 25
June— 8th	0 060	—	—	—	0 060	—	—

May 10th Diffusible Ca 7 08 11th Cell count 30,000 15th CO_2 content 49 per cent 18th CO_2 content 44 per cent 22nd Cell count, 810 , albumin, 0 146 per cent , globulin, 0 116 per cent , N P N , 0 017 per cent 28th CO_2 content 50 5 per cent , cell count, 20

The results on the whole are typical of an acute meningococcal meningitis, although a few of the figures for sodium chloride are so low as to suggest a tuberculous infection It may be of interest to note that the cerebro-spinal fluid on May 22nd gave a strongly positive reaction with acetic anhydride and sulphuric acid (Harris test for paresis),[1] whilst it was quite negative on June 8th This suggests that this test, like the colloidal gold reaction, is dependent upon an abnormal ratio of albumin to globulin

We are indebted to Dr J E Harburn for permission to publish these notes

A CASE OF CANCER OF THE BREAST

WITH AN UNUSUAL SEQUEL

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The following case appears worth recording

Mrs M , aged 56, was admitted to St Mary's Hospital, London, on account of a lump in the breast which had been present for three months Her left arm had lately begun to swell Her general condition was good apart from a secondary anæmia A lump having all the usual signs of a carcinoma occupied the axillary tail of the left breast , it was fixed to the pectoralis major, and the skin overlying the lower and outer quadrant of the breast showed typical *peau d'orange* infiltration The axilla contained several hard glands

On Sept 25th, 1926, Mr Duncan Fitzwilliams performed a radical operation, during the course of which it was found that a mass of infected lymphatics passed from the growth to the axilla and along the axillary vein Together with the whole of the axillary fat and glands this was removed en masse by gauze dissection The disease was found to be much more extensive than had been suspected Four days later the patient's breast-flap began to be discoloured and the suture line gaped A course of four injections of colloidal lead was commenced On Oct 5th the flap sloughed right off, exposing intercostal spaces covered with weak granulation tissue When the raw area had been cleaned for a week with hypertonic saline dressings, an attempt to approximate the edges was made under gas and oxygen anæsthesia On Oct 26th the patient was apparently doing well, but in the early morning of the following day she suddenly felt acute pain and became collapsed Her pulse was imperceptible, a swelling appeared above the symphysis pubis, and the left labium became enormously distended and fluctuant The foot of the bed was raised and morphia given She improved in a few hours and the swelling subsided and seemed to pass backwards into the perineum The skin showed later a purple discoloration over the labium in front of the pubes The next day a similar attack occurred, but with no swelling The treatment was repeated and hot saline was given per rectum The heart-rate was 150 a minute, though the pulse was imperceptible

No diagnosis of the cause of the trouble was reached, but later it was suggested that a retroperitoneal hæmorrhage had found its way through the inguinal canal and caused the swelling in this area There was, however, no sign in the abdominal cavity either of hæmorrhage or free fluid

On the following day (Oct 28th) at 3 30 A M there was marked air-hunger, restlessness, slight abdominal distension and dullness in the flanks The pulse could not be felt and the patient died in a few minutes

Post-mortem Examination —Externally a large hæmatoma of the labium was seen to extend down the canal of Nuck On dissection the third, fourth, and fifth intercostal muscles were found to be completely replaced by new growth, though covered with apparently healthy granulation tissue The underlying pleura was studded with nodules of new growth, and the lung was so collapsed that it sank in water On opening the abdomen a pint of fluid blood was removed large clots surrounded the tail of the pancreas, which, on section, was full of new growth that had spread directly along the lymphatics traversing the diaphragm from the diseased pleura In the tail of the pancreas the growth had softened and eroded the splenic vein, thus giving rise to recurrent intraperitoneal hæmorrhages, and finally causing death The subcutaneous hæmatoma was due to blood tracking along the canal of Nuck to the perineum

The interest of the case lies in the unusual method of spread by direct extension along lymphatics to the pancreas and in the curious clinical features which were so puzzling till the definite signs of internal hæmorrhage gave a clue to the condition Injections of colloidal lead sometimes causes softening of carcinomata, and it is just possible that the softening was due to this treatment

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[1] Brit Med Jour , 1926, i , 136

I wish to thank Mr Fitzwilliams for his permission to publish this case

A NOTE ON COMBINED AMNESIA.

BY CORNELIA WINTER, M B , CH B EDIN ,
HON ANÆSTHETIST, GENERAL HOSPITAL, WOLVERHAMPTON

LOCAL anæsthesia has now been established as a safe and reliable procedure, and the surgeon can confidently assure his patient that he will feel no pain The patient, however, especially if he is nervous or has had much pain previously may not share his confidence, and consequently may go through a good deal of mental suffering

An attempt has been made both to determine the stages of anæsthesia in which, when painful stimuli have been abolished by local injection of novocaine solution, a complete amnesia is produced, and to assess the advantages of such methods of anæsthesia The subjects of the test were patients requiring nasal operations In each case the nose was sprayed with cocaine hydrochloride (5 per cent solution in adrenalin) Two minims of this solution were sprayed into each nostril every five minutes, this being done three times, and anæsthesia for all ordinary purposes was produced after half an hour Such anæsthesia was found to last for one and a half hours, and if during this time the patient was made to inhale the vapour of chloroform-ether mixture (one part chloroform, two parts ether) it was found that he lay relaxed and motionless while the operation was performed The mixture was breathed until he could no longer repeat numbers spoken by the anæsthetist, and the degree of chloroform-ether anæsthesia reached was that of the first stage of surgical anæsthesia Where an operation was designed to last for more than three or four minutes the amnesia was continued by dropping ether on several layers of gauze covering the patient's mouth The patient was able to carry on a conversation within three or four minutes of the end of the operation Shock was markedly absent and post-anæsthetic vomiting did not occur

At the beginning certain difficulties arose Thus if the patient passed beyond the first into the struggling stage of surgical anæsthesia, complete anæsthesia had to be produced In seven cases the patients spoke during the operation but none of them afterwards remembered anything of the operation Cases were not always satisfactory in their return to consciousness One patient, for instance, still felt the effects of the anæsthetic after sleeping for three hours. The vast majority of subjects however, recovered consciousness at once and remained conscious, suffering no ill-effects whatever from the anæsthetic About 80 cases have been treated in this way, and as our knowledge of the technique of administration grows the above difficulties tend to disappear

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MESSRS J and A. Churchill announce that a second edition of Prof A J Clark's Applied Pharmacology" will shortly be published A second edition of "Synopsis of Hygiene," by Dr W W Jameson and Mr F T Marchant, is also ready and is said to incorporate all the regulations which have recently come into force

THE King has sanctioned the following promotions in and appointments to the Venerable Order of the Hospital of St John of Jerusalem Major Sir John Lumsden M D , to be Knight of Justice , Lieut.-Colonel Evan James Trevor Cory, M D to be Knight of Grace , and Dr Marcus Antonius Johnston de Lavis-Trafford, Dr Albert Reginald McLeod, Colonel Richard Arthur Needham, I M S Dr Louis Patrick Stokes Major Hugh Tener Galbraith F R C S and Dr Robert Douglas Argyll Douglas to be Officers (Brothers)

Medical Societies.

MEDICAL SOCIETY OF LONDON.

CHANGES IN THE CLINICAL ASPECTS OF DISEASE

A MEETING of the Medical Society of London was held on Jan 10th when SIR HUMPHRY ROLLESTON gave a presidential address

Everyone recognised, he said, that the common epidemic diseases showed variation from year to year in the degree and prominence of certain characters and manifestations. What was called "influenza" might in one year be mainly nasopharyngeal, in others it was pulmonary, gastro-intestinal, or nervous, or from the presence of a rash it imitated scarlet fever. The fact that a familiar disease might suddenly change its character and become very virulent made the subject of variation of immediate practical importance It might be argued that what were called types of influenza were really distinct diseases On the other hand, Sir William Hamer had for years believed in the epidemiological relationship of diseases associated with different microbic agents and had regarded influenza, cerebro-spinal fever, acute poliomyelitis, and epidemic encephalitis as variants of the same morbid process Referring to these and other diseases Hamer had written: "Surely we may recognise the protean influenza, now merely in mufti, but changing from one civilian garb to another under our eyes, and demonstrating unmistakably that the more it changes the more it is the same thing" Later he had suggested that in pandemic times the virulence of the influenzal germ was different from its activity in the intervals or trailing prevalences, in pandemics it gave rise to a shock-attack or influenza, but in the intervals it was apt to activate various secondary or associated micro-organisms such as pneumococci, streptococci, and meningococci This was much less iconoclastic than the view that all these diseases were due to modification of the same micro-organism

Examples of Change

A number of diseases, continued the President, were known to have changed their clinical characters, thus scarlet fever had been very mild a century ago, 50 years ago it had been extremely malignant, and now again it was a mild infection The clinical differences were perhaps due to infection by differing types of the strains of *Streptococcus hæmolyticus* and it might be that whereas simple mild scarlet fever was due solely to pure streptococci, the malignant forms were a result of secondary infection Acute rheumatism had become less acutely arthritic, though not less common Thoracic complications were now very rare in this disease, a change possibly connected with alteration in treatment—venesection in the past and salicylates during the last 45 years Secondary infections might have been favoured by the length of the illness in pre-salicylate days Acute and tophaceous gout was becoming a curiosity, a change attributed to temperance Pneumonia had considerably altered its character since the reappearance of influenza in 1889, broncho-pneumonic forms being now, perhaps as frequent as the frank lobar form: but this was only to say that there were several forms of the disease The mortality varied also according to the type of pneumococcus The character of small-pox had been changeable in the past and mild epidemics had been noted by Sydenham, Jenner, and others Some regarded the disease now prevalent as distinct from small-pox and would like to give it a separate name There were good grounds however for thinking that it was a mild form of small-pox due to a virus with suppression of its toxic properties for man, its affinities for other animal species not being appreciably changed. It occurred almost solely in the unvaccinated and protected against small-pox and vaccinia; experimentally the viruses of the three diseases had been shown to be variants of the same virus As a rule, though not invariably, the mild form bred true, but the mild and severe forms of small-pox might occur side by side The objection to employing a special name was that it might make it even more difficult to maintain the necessary preventive measures of vaccination and isolation

Acute appendicitis, said the President, had undoubtedly become very much commoner since 1889, when influenza broke upon this country after a respite so long that its nature was not recognised for some little time Had it been as frequent before its operative treatment came in as it was now, the mortality from acute peritonitis in those days would have been very high To explain its increased occurrence various factors had been suggested, such as alteration in diet, great consumption of meat—fresh, frozen, or tinned—fresh fruit and antimony from the red rubber of bottle-stoppers The association with the return of influenza which had an intestinal form, was certainly significant

Amongst comparatively recent changes in chronic disease, said the President, were the great diminution of chlorosis—to be contrasted he believed, with an increased incidence of pernicious (Addisonian) anæmia —and an apparent reduction in the occurrence of urinary calculi Syphilis when it broke out in a previously uninfected race, was much more virulent than in civilised and syphilised countries, but the much milder type of the cutaneous and bony lesions of syphilis in this country could hardly be ascribed solely to some approach to relative immunity for, like other diseases, syphilis had been modified by early recognition and treatment Such treatment might in part explain why the terrible tertiary lesions of bone were now seen so seldom, and in the same way prophylactic and curative measures had done much to abolish enteric fever and had robbed diphtheria of many of its terrors Early operation for perforated or leaking gastric ulcer had made gas-containing subphrenic abscesses extremely rare, and the character of cases of gall-stones had undergone some change owing to earlier operation in cholecystitis In Paris, at any rate, stones in the common bile-duct had become uncommon

Variable Resistance of the Host

It would be strange, indeed, the President went on, if diseases always remained the same, for they must vary both with the cause and with the host—the seed and the soil The effect of a virulent micro-organism's attack was influenced by the resistance of the individual, and as Prof W W C Topley and Prof Major Greenwood were showing,[1] the spread of an epidemic depended also on the susceptibility of the herd as a whole Through secondary infections, moreover, the part played by bacteriophages and by diet might possibly affect the relations between the parasite and the host That continued exposure might be followed by a greater or less degree of immunity in exposed persons was suggested by the increased resistance of laboratory animals which had survived an epidemic, by the growing immunity of schools and institutions to diphtheria and to scarlet fever, as shown by the Schick and Dick tests, by the fact that natives in the tropics acquired immunity to malaria and yellow fever, and, indirectly, by the severity of epidemics of measles among the inhabitants of isolated countries, where the disease rarely occurred

Though the long persistence of epidemic diseases, especially measles, showed that time produced little racial immunity, L T Webster had brought forward experimental evidence of its development, and there were clinical grounds for thinking that an increase occurred during long periods Changes in the constitution or make-up of the members of a race must also exert some influence on the liability to special diseases, the Jews, for instance, were particularly prone to diabetes mellitus, obesity, and arterio-sclerosis Environment, hygienic conditions, alcoholism, and food-supplies influenced the general resistance and so the susceptibility to disease It would be interesting to know which of the two factors, the variations in the host's resistance and the pathogenic power and the dosage of the microbe, was more important in the production of infection In human disease it seemed reasonable to anticipate that impaired resistance would play a more dominant part than microbic fluctuations in favouring infection The increased frequency of subacute and chronic bacterial endocarditis raised the question whether this could be correlated with correspondingly great incidence of focal infections—dental, tonsillar, or intestinal—which were in turn due to a widespread diminution in resistance allowing micro-organisms (e g, strains of streptococci) usually saprophytic to become pathogenic The definite increase of subacute and chronic bacterial endocarditis, especially in ex-Service men, since the war, with its infecting and depressing conditions, was an argument in favour of the view that a diminished resistance was the probable responsible factor. War might so reduce the resistance of the nations that diseases not usually prevalent or sometimes previously unrecognised came into prominence In Russia, for instance, during the late war rickets, hunger œdema, famine cachexia, acute enteritis, and peptic ulcer, and typhus and relapsing fever (immediately due to animal vectors) had become rampant Tuberculosis had increased in all the combatant European nations In Germany and Austria rickets had become extremely common, and keratomalacia and blindness appeared, in Germany there had been an increase of jaundice and acute yellow atrophy Epidemic encephalitis, practically a new disease, had been described by Economo in Vienna in 1917, and soon, like influenza, had spread over the world The conditions of stationary warfare had created trench fever and trench nephritis and made spirochætosis icterohæmorrhagica common instead of a curiosity But these conditions were chiefly an outcome of circumstances favouring mass infection, and not, in the main, the outcome of changes in the resistance of the troops

It was tempting, said the President, to associate with " the wear and tear of modern life " an increase of functional and organic nervous diseases, of diabetes high blood pressure, and arterio-sclerosis, but it was difficult to be certain—probable as it might seem—that neurasthenia and functional disease were much commoner now than in the past It was impossible to be certain that there had been an increase of high blood pressure, and arterio-sclerosis had been common in ancient Egypt

Variations of Bacteria

Variation and mutation, said the President in conclusion, were more readily and rapidly produced in bacteria than in higher animals and man, and serological research had shown the perplexing problems which might arise from them He instanced *Bacillus paratyphosus* B and *Bacillus aertrycke* as organisms culturally and morphologically indistinguishable yet serologically different, and also distinct in their clinical effects, the first causing paratyphoid fever and the second acute food poisoning Virulence, moreover, might be modified by environment, nature of nutrient material, temperature, and possibly other factors Changes in the clinical aspects, for example, of enteric fever and cerebro-spinal fever, might be due to infection with different types of the typhoid-paratyphoid group and of the meningococcus It was reasonable to believe that further evolution of such varieties might be accompanied by such alterations in the clinical picture as to constitute new diseases, as, indeed, had occurred in the differentiation of typhoid and paratyphoid fevers The adaptability of bacteria to altered conditions so that a harmless saprophyte living on the surface of the body could be changed into a pathogenic micro-organism had been emphasised by the late Prof J G Adami, who had given as a probable example the transformation of some previously harmless diphtheroid bacillus into the virulent diphtheria bacillus, to account for the appearance at the beginning of the last century of diphtheria, a disease so sharply cut that it could hardly have been overlooked by all physicians until Bretonneau of Tours gave his classical description in 1821 Among animals hog-cholera, unknown before the 'sixties, when it appeared in the United States, was another example in support of the view that bacteria could and did undergo evolution from a saprophytic to a pathogenic state

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[1] THE LANCET, 1926, i, 477, 531, 645

Discussion

Dr E M **Callender**, proposing a vote of thanks to the President, said that it was now 30 years since he had seen one of those severe cases of syphilis which began with high fever and went on with periostitis affecting several bones, profuse eruption, and profound illness He was also well aware of the changes in virulence of influenza, and recalled an occasion in France in 1918 when 35 men who had been brought in suffering from influenza died in the night

Sir **Charles Ballance**, seconding the vote, referred to the immense debt the profession owed to Sir Humphry Rolleston for his intellectual activity Going on to speak of the advantages of vaccination, he said that in Egypt alone 60,000 children died of small-pox yearly before vaccination was introduced He clearly remembered a lecture given by Dr. Charles Murchison, the greatest clinical teacher he had known, when he was Murchison's clinical clerk That was about 1878, and the subject was Fatal Cases in which Pus is Found in the Neighbourhood of the Cæcum , yet at that time there was no suggestion in London for operating on the appendix, and despite the fact that Liebert, in his "Pathological Atlas," had well illustrated the subject of appendicitis and given a clinical description of it, he had not suggested operating for its relief As regards the changes in syphilis, he thought that even after modern methods of treatment there could still be late sequelæ of the disease, such as locomotor ataxia

The **President** replied to the vote of thanks, and invited Sir William Hamer to take part in the discussion

Sir **William Hamer** agreed with the President's view that medical men were now beginning to realise that they were not dealing with diseases, but with the reaction between the germs and the human body —a conception which had been rather lost sight of in the gathering of so much information about the germs themselves Medical men of the eighteenth century had been clear in their idea that they were dealing with the results of this reaction, as were Sydenham and Willis 100 years before them Sydenham, in his medical observations, talked of infecting particles in the air and the crises and the humours, and said that the latter were only concerned in so far as the infecting particles in the air had influenced them The difference of symptoms and manifestations in epidemics was due to the differences in the reactions of persons In his chapter on fevers, Willis was even more explicit In 1657–58, which was a year of influenza, he attributed the outbreak to infecting particles in the air, but realised that this was not a sufficient explanation—that there had to be, to produce the symptoms a reaction on the part of the human body to those particles

Sir **Percy Bassett-Smith** spoke of the changes observed in the character of Malta fever In former days, when the wards were full of the disease, the patients had acute sweats and painful arthritis, accompanied by a good deal of neuritis, so that morphia had to be freely used to mitigate their sufferings Nowadays arthritis of severe degree was seldom met with, and the type of the fever was not so severe as formerly In the cases described as occurring now in South Africa, Italy, and the South of France, there was a much greater tendency to hæmorrhagic complications and to slight meningeal involvement neither of which had been much heard of in earlier days Thus in 30 years the disease had shown a great change in the chief manifestations In countries where the disease was common the carrier of the infection had also largely changed In the Italian and French Riviera the carrier was the sheep more than the goat, while in Italy and South Africa the carrier was now the cow In America, too, the type of disease seen was chiefly attributed to cattle There was a very close likeness between the organism formerly found in goats and that now found in cattle and sheep, and it was highly probable that in its passage through animals which did not actually suffer from the disease the organism had undergone some modification of its virulence, and consequently caused a modified disease in infected human beings Typhus had been a very fatal disease, but in the tropics there was now a typhus which had practically no mortality , it caused an eruption, lasted 14 days, and then disappeared Why was this ? The two diseases could not be called separate for they had much in common

Mr **Zachary Cope** said that by asking a medical man whether he had seen certain diseases or what kind of cases he had seen, it was almost possible to tell at what period he qualified Extravasation of urine, enlarged glands in the neck, and ulceration in chlorotic women had become rare during the last 20 years On the other hand, cancerous and other degenerative conditions following the over-use of irradiation were a recent manifestation, and it was not impossible that in the future cases of violet-ray epithelioma might have to be faced

Dr H A **Des Vœux** said that he doubted whether the President was right in his suggestion of a relationship between influenza and appendicitis Influenza had been known for 400 years, and the name had been given to it by a London physician who said that it flowed all over England, from the King in his palace to the peasant in his cottage If it had been a cause of appendicitis the latter would have been earlier and better known, though it had been recognised, he thought, earlier than was usually supposed In earlier days appendicitis generally resulted in acute peritonitis, a condition now very uncommon Many people had periodic attacks of appendicitis which quieted down, and he knew a lady, aged 86, who had had chronic appendicular attacks for 45 years and had never been operated upon So-called bilious attacks, with abdominal pain, seemed now to have largely died out , they were probably due to appendicitis

Dr F **Parkes Weber** said that one of the great difficulties in discussing the subject was the change in the names given to diseases, but a still greater difficulty was that the same name had been used at different periods for different diseases Before the war a disease, not very rare, was described as occurring in Australia in epidemics and was described by Dr H Smith as erythœdema , he had said that it was characterised by redness and pain in the extremities. Then the name had been given to a disease characterised by redness and swelling in the extremities and later papers had been contributed speaking of cases of redness and pain in the extremities as erythromelalgia Acrodynia was another name which had been given to more than one condition ; that to which it was now applied did not correspond to the disease which, under the same name, created such an impression in France 100 years ago

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A Novel Contributory Scheme —A scheme has been established in a Bradford factory under which the workers pay 1s per annum each to ensure in-patient treatment at the Bradford Municipal General Hospital It is actuarially calculated that this small contribution will be sufficient to meet the fees which would be charged if the men went in as private patients The Health Committee of the Corporation have accepted the scheme and it is hoped to extend it to other factories Indeed, it is being proposed that these facilities should be offered to all and sundry at the same price Dr J T Buchan, the medical officer of health for Bradford gives it as his belief that sooner or later, the public will ask for some such arrangement

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF COMPARATIVE MEDICINE AND TROPICAL DISEASES AND PARASITOLOGY

A combined meeting of these Sections was held on Jan 5th, Sir D'Arcy Power, President of the Section of Comparative Medicine, in the chair.

Dr W. H Andrews opened a discussion on

Trypanosomiasis in Man and Animals

He spoke of the simplicity of early classifications and the maddening complexity which had followed He regarded the recent tendency to group and simplify, particularly the work of Wenyon as a sign of progress Classification was very difficult and was impossible on morphological grounds alone, but the introduction of biological characters into the scheme of classification was very unsafe The mode of development in the fly appeared to be stable, but such characteristics as virulence to particular species were of very doubtful value Even the morphology was not absolutely fixed There was constant difficulty in trying to see order amidst the chaotic masses of facts It was doubtful whether the effects of artificial propagation from mammal to mammal were the same as those of mechanical transmission in the field The speculation was fascinating but many facts seemed to argue against it The *T brucei* as originally described by Plimmer and Bradford was now unknown Probably the organism was polymorphic and had taken on that particular monomorphic form as a result of repeated inoculation in the laboratory The whole question of virulence was one on which much more information was needed In many cases cattle harboured trypanosomes without suffering any harm and formed reservoirs, yet at times there would be serious outbreaks of disease among them from the same organism In some cases age appeared to be a factor as well as the strains of host and organism The effect of the mammalian host on the parasite might be very considerable There was no direct evidence of such an effect on trypanosomes, but the ultramicroscopic virus of African horse-sickness, for example, might be found on recovery from inoculated animals to have undergone sudden increase in virulence or to be much weaker Continued observations were needed on the difference between mechanical and cyclical transmission and their effects on virulence Parties of men and animals were constantly going up from Natal to Zululand, they lost dogs and horses, and many animals still harbouring the parasite must return with them, yet trypanosomiasis was never brought down to Natal The only case of naturally occurring *T gama* infection the speaker knew of was in a laboratory dog which had eaten the carcasses of artificially infected guinea-pigs If the work of Cross and Patel could be confirmed, it would be recognised as one of the most important pieces of investigation ever done in this field

Prophylaxis

The importance of domestic animals as reservoirs must not be forgotten, continued Dr Andrews The objections to destruction of game arose from sentiment, from fear of making the organisms concentrate on man, and of scattering the game (and with it the fly) by large hunts, and from the impossibility of destroying the smaller mammals which might act as reservoirs Nevertheless, he considered the case sufficiently proved to justify the extension of the method on careful trial, there was no doubt of the importance of game in the disease and it ought to be controlled Game-reserves must be large and suitable, with natural boundaries, in one area there were two small reserves with an intervening settled strip, and under certain conditions of rainfall the animals trekked from one reserve to the other across the inhabited area and a large main road.

Chemotherapy

There was no doubt, said Dr. Andrews, that emetine was the best drug for *T congolense* and Bayer 205 for surra in equine animals Edwards had used the method of intrathecal inoculation, and found that the dosage must be regulated in accordance with the amount of tissue which could be reached by the drug and the amount of dilution which would be expected in such a direct method There was difference of opinion as to whether the aim should be complete sterilisation or the checking of the disease until the natural defences were built up and the patient became tolerant Chemotherapy could assist prophylaxis by keeping an area clear during threatened periods

Dr P Manson-Bahr said that there were two features in the introduction of any new drug which the practitioner of tropical medicine soon learned to realise—that the action of a drug on the parasites of an artificially injected animal did not necessarily correspond with its therapeutic effects in man and that there was an infinite variety in the reaction of individual patients to specific remedies

Bayer 205 or Germanin, said Dr Manson-Bahr, was a white flocculent powder which appeared to be much more effective when injected intravenously than when given orally or intramuscularly The dose for an adult man was assessed, after trial, at 10 g for permanent cure, given in 1 g doses weekly A single injection caused a disappearance of all the trypanosomes from the blood stream in about 18 hours after a remarkable momentary proliferation Relapses after 5 g were not infrequent, and a strain of Bayer 205 fast trypanosomes might be evolved in man, as in mice, monkeys, and cattle Unfortunately, the drug was a renal irritant and produced a subacute nephritis with albumin and casts, which might persist for six weeks after treatment had stopped Occasionally an acute fatal nephritis had supervened It did not influence the meningeal reaction, so that patients in the second stage of the disease inevitably relapsed The intrathecal method of administration was highly dangerous Modern German workers thought that intensive treatment during the first week (2 to 3 g in two to three days) ensured permanent sterilisation and diminished the liability to so-called fastness There was some evidence that Bayer 205 was better for infections with *T rhodesiense* than with *T gambiense* In his own opinion it was the drug of election for early hæmic infections and for those cases in which the trypanosomes had become fast to arsenical or antimonial preparations

Tryparsamide, he continued, cleared the blood in infections with *T gambiense* in from 6 to 12 hours when given in doses of 1 to 5 g. intravenously The only untoward symptom was dimness of vision Subcutaneous injections produced abscesses The drug had a profound influence on the meningeal reaction and was, therefore, the drug of election in the second and third stages of the disease Whether or not the drug entered the cerebro-spinal fluid, the cell-count and albumin-content were greatly influenced and clinical improvement proceeded pari passu Failures with the drug were most likely to occur in patients whose trypanosomes had been rendered arsenic-fast by previous treatment with atoxyl and soamin The present outlook in treatment was most hopeful, great advances had been made during the last six years There was a close analogy between trypanosomiasis and syphilis In both a massive invasion of the nervous system took place in the terminal stages only, tryparsamide had proved effective in cerebral syphilis as well as in cerebral trypanosomiasis The most effective and rapid treatment of human trypanosomiasis lay probably in the combination or alternation of Bayer 205 and tryparsamide Since the two drugs were the antithesis of each other, no fastness could develop by alternation Brevity in treatment was of the first importance in dealing with Central African natives who would not remain in hospital

Discussion

Dr J **Gordon-Thomson** said that morphologically the trypanosomes of animals and man showed no differences. An organism indistinguishable from *T gambiense* could be isolated from wild antelopes In 1921 Duke had put forward the hypothesis that certain trypanosomes had possibly become monomorphic through long mechanical transmission, some observations recently made in the School of Tropical Medicine tended to confirm this It was quite possible to produce from *T gambiense* and *T brucei*, by transmission through rats, a strain which to all intents and purposes was indistinguishable from *T evansi* Thompson and Robertson had recently shown that after repeated subinoculation a species lost its characteristic morphology, but if the host were suddenly changed the original characteristics sometimes reappeared A dose of an arsenical preparation might act in the same way as a change of host, altering a strain which had been monomorphic in rats for several years into a polymorphic variety It was very difficult to inject *T gambiense* into the rat, two rats had been successfully inoculated from a human case, but showed very little for six months, save a few trypanosomes in the blood The virulence increased up to a certain point by subinoculation, in one rat it had actually decreased It was possible to cure a rat clinically by tryparsamide, for instance but enough trypanosomes to kill a normal rat in a fortnight remained in the cerebro-spinal fluid and were still found there after the rat had been healthy for weeks and had reared a healthy family

Dr **Humphrey Neame** showed photographs of sections of the eye of a dog which had a marked corneal opacity Keratitis had been produced in many experimental animals—dogs, goats, and a horse —by trypanosome infection The sections showed an increase of cells in the periphery of the cornea which was partly necrosed, and there was a mass of fibrous material, containing many trypanosomes, in the anterior chamber Interstitial keratitis and iridocyclitis had been reported in men suffering from trypanosomiasis The condition was comparable with the keratitis of canine distemper and of syphilis, with the periodic ophthalmia of horses, and with tuberculous and leprous keratitis in man and cats It was a local manifestation of a blood infection and was of considerable clinical importance

Colonel F **Harvey** said that when he was working with Sir David Bruce in Uganda and Nyasaland they had found that they were dealing with three trypanosomes—a small *congolense* type, a larger *vivax*, and the *T brucei*, which was polymorphic in the original slides The *T brucei* monomorphic strain was slightly different from the local Nyasaland strain and contained more stumpy forms The strain originally sent home had been found in a few cases at this time, it was monomorphic and produced a very chronic illness in dogs, whereas the ordinary *T brucei* killed them very rapidly The explanation of the monomorphic trypanosome described first as *T brucei* might be that it was this strain which reached home, as it would have been impossible to get a dog home alive if it had been infected with the polymorphic strain A trypanosome found in the wart-hog was very virulent for animals, especially the pig and the monkey, but in goats it produced a very chronic illness Subinoculation from the goat to the monkey was very difficult, but when achieved was found to produce a very chronic illness in the monkey Attempts had been made to pass the monomorphic strain through the fly to change it back, but it was very hard to get the flies to pick up the infection, and when they fed again on dogs it was found that no alteration whatever had been produced in the trypanosome

Sir **John Moore** spoke of the successful results of treatment in India by potassium and sodium antimony tartrates That country was faced with a serious epidemic of surra in horses, and camels were being decimated by this disease The use of Bayer 205 had given excellent results

LONDON ASSOCIATION OF MEDICAL WOMEN'S FEDERATION

A MEETING of this Society was held on Dec 14th, Miss E **Bolton**, the President, being in the chair

Dr **Harrington Sainsbury** read a paper on the

Problem of Resuscitation after Systemic Death

He said that systemic death, while putting an end to the corporate life of the body, viewed as a collection of *associated* organs and tissues does not terminate somatic life—i e, the life of the body viewed as a collection of *dissociated* organs and tissues At the moment of systemic death these organs and tissues retain more or less of individual life and have their several rates of dying, though the tenure of life is not of long duration even for the most hardy of them Since the blood serves as a carrier of elements indispensable to the tissues, its coagulation-point is a crucial factor in the determination of the possibility of resuscitation While the blood remains fluid systemic life may be regarded as capable of resuscitation, given the persistence of a sufficiency of somatic life in the tissues generally and in the heart specially.

As a practical problem, the question of resuscitation will scarcely arise in the case of death at the natural term of life where the vital powers have for a long while been manifestly ebbing, in spite of the use of such stimulant means as we possess in diet and appropriate medicinal measures Neither will it arise in the case of long drawn-out and exhausting diseases, such as tuberculosis and cancer, where all the evidence indicates that at best there can only be a temporary rally The likelihood, however, of a recovery of the powers of the mind and body, which, though brief, might yet suffice to permit of some all-important act say, for testamentary purposes, might have to be considered, but such cases would be rare On the other hand, the problem becomes eminently practical in proportion as it appears that the inherent powers of the tissues, severally, are unexhausted and that the systemic death present is rather of the nature of a suspended animation which has arisen more or less abruptly at the heart or at the lungs In such cases the somatic vitalities being still in their plenitude, there is no reason why, if the heart and the respiratory apparatus can be restarted, life should not proceed to its usual term At the threshold of life this problem arises in the case of the stillborn infant, in whom the indications point either to an arrested heart or unstarted breathing, and, again and again, in the average course of life this same problem is liable to confront the doctor, whether through the incidence of mishap or of acute disease, or in the midst of an operation, at times of the most trivial kind, or, it may be, even during the administration of an anæsthetic before the operation has begun

Dr Sainsbury pointed out that the enormous disparity between the forces engaged in the respiratory and in the circulatory functions made resuscitation of the latter system a task of far greater magnitude For, though the first breaths taken after birth had to overcome a very considerable inertia of the respiratory apparatus, respiration once established, the muscular effort required to keep it going in normal breathing was no more than that needed to move the volume of tidal air in and out of the chest In the absence of obstruction to the air-passages, restarting of arrested respiratory motion was comparable to the slight touch which starts the pendulum of a clock already wound up, and it was a well-recognised measure which had passed beyond the need of discussion On the other hand, when the circulation of the blood had failed a force had to be supplied to meet a great resistance—namely, a pressure corresponding in man to approximately 150 mm of mercury in the aorta Fortunately, it was not necessary that the full momentum of the circulation should be generated all at once The elasticity of the arterial system and the mechanism of the aortic

ROYAL SOCIETY OF MEDICINE

SECTIONS OF COMPARATIVE MEDICINE AND TROPICAL DISEASES AND PARASITOLOGY.

A COMBINED meeting of these Sections was held on Jan 5th, SIR D'ARCY POWER, President of the Section of Comparative Medicine, in the chair.

DR W H ANDREWS opened a discussion on

TRYPANOSOMIASIS IN MAN AND ANIMALS

He spoke of the simplicity of early classifications and the maddening complexity which had followed He regarded the recent tendency to group and simplify, particularly the work of Wenyon, as a sign of progress Classification was very difficult and was impossible on morphological grounds alone, but the introduction of biological characters into the scheme of classification was very unsafe The mode of development in the fly appeared to be stable, but such characteristics as virulence to particular species were of very doubtful value Even the morphology was not absolutely fixed. There was constant difficulty in trying to see order amidst the chaotic masses of facts It was doubtful whether the effects of artificial propagation from mammal to mammal were the same as those of mechanical transmission in the field The speculation was fascinating but many facts seemed to argue against it The *T brucei* as originally described by Plimmer and Bradford was now unknown. Probably the organism was polymorphic and had taken on that particular monomorphic form as a result of repeated inoculation in the laboratory The whole question of virulence was one on which much more information was needed In many cases cattle harboured trypanosomes without suffering any harm and formed reservoirs, yet at times there would be serious outbreaks of disease among them from the same organism In some cases age appeared to be a factor as well as the strains of host and organism The effect of the mammalian host on the parasite might be very considerable There was no direct evidence of such an effect on trypanosomes, but the ultramicroscopic virus of African horse-sickness, for example, might be found on recovery from inoculated animals to have undergone sudden increase in virulence or to be much weaker Continued observations were needed on the difference between mechanical and cyclical transmission and their effects on virulence Parties of men and animals were constantly going up from Natal to Zululand, they lost dogs and horses, and many animals still harbouring the parasite must return with them, yet trypanosomiasis was never brought down to Natal The only case of naturally occurring *T gama* infection the speaker knew of was in a laboratory dog which had eaten the carcasses of artificially infected guinea-pigs If the work of Cross and Patel could be confirmed, it would be recognised as one of the most important pieces of investigation ever done in this field

Prophylaxis

The importance of domestic animals as reservoirs must not be forgotten, continued Dr Andrews The objections to destruction of game arose from sentiment, from fear of making the organisms concentrate on man, and of scattering the game (and with it the fly) by large hunts, and from the impossibility of destroying the smaller mammals which might act as reservoirs Nevertheless, he considered the case sufficiently proved to justify the extension of the method on careful trial, there was no doubt of the importance of game in the disease and it ought to be controlled Game-reserves must be large and suitable with natural boundaries, in one area there were two small reserves with an intervening settled strip, and under certain conditions of rainfall the animals trekked from one reserve to the other across the inhabited area and a large main road

Chemotherapy

There was no doubt, said Dr Andrews, that emetine was the best drug for *T congolense* and Bayer 205 for surra in equine animals Edwards had used the method of intrathecal inoculation, and found that the dosage must be regulated in accordance with the amount of tissue which could be reached by the drug and the amount of dilution which would be expected in such a direct method There was difference of opinion as to whether the aim should be complete sterilisation or the checking of the disease until the natural defences were built up and the patient became tolerant Chemotherapy could assist prophylaxis by keeping an area clear during threatened periods

DR P MANSON-BAHR said that there were two features in the introduction of any new drug which the practitioner of tropical medicine soon learned to realise—that the action of a drug on the parasites of an artificially injected animal did not necessarily correspond with its therapeutic effects in man and that there was an infinite variety in the reaction of individual patients to specific remedies

Bayer 205 or Germanin, said Dr Manson-Bahr, was a white flocculent powder which appeared to be much more effective when injected intravenously than when given orally or intramuscularly The dose for an adult man was assessed, after trial, at 10 g for permanent cure given in 1 g doses weekly A single injection caused a disappearance of all the trypanosomes from the blood stream in about 18 hours after a remarkable momentary proliferation Relapses after 5 g were not infrequent, and a strain of Bayer 205 fast trypanosomes might be evolved in man, as in mice, monkeys and cattle Unfortunately, the drug was a renal irritant and produced a subacute nephritis with albumin and casts, which might persist for six weeks after treatment had stopped Occasionally an acute fatal nephritis had supervened It did not influence the meningeal reaction, so that patients in the second stage of the disease inevitably relapsed The intrathecal method of administration was highly dangerous Modern German workers thought that intensive treatment during the first week (2 to 3 g in two to three days) ensured permanent sterilisation and diminished the liability to so-called fastness There was some evidence that Bayer 205 was better for infections with *T rhodesiense* than with *T gambiense* In his own opinion it was the drug of election for early hæmic infections and for those cases in which the trypanosomes had become fast to arsenical or antimonial preparations

Tryparsamide, he continued, cleared the blood in infections with *T gambiense* in from 6 to 12 hours when given in doses of 1 to 5 g intravenously The only untoward symptom was dimness of vision Subcutaneous injections produced abscesses The drug had a profound influence on the meningeal reaction and was, therefore, the drug of election in the second and third stages of the disease Whether or not the drug entered the cerebro-spinal fluid, the cell-count and albumin-content were greatly influenced and clinical improvement proceeded pari passu Failures with the drug were most likely to occur in patients whose trypanosomes had been rendered arsenic-fast by previous treatment with atoxyl and soamin The present outlook in treatment was most hopeful, great advances had been made during the last six years There was a close analogy between trypanosomiasis and syphilis In both a massive invasion of the nervous system took place in the terminal stages only, tryparsamide had proved effective in cerebral syphilis as well as in cerebral trypanosomiasis The most effective and rapid treatment of human trypanosomiasis lay probably in the combination or alternation of Bayer 205 and tryparsamide Since the two drugs were the antithesis of each other, no fastness could develop by alternation Brevity in treatment was of the first importance in dealing with Central African natives who would not remain in hospital

valve enable the summation of small efforts and give the necessary time for recovery Dr Sainsbury said that the period during which the blood remained fluid and the heart-muscle retained its contractility could not be given precisely in minutes, but must vary with the individual In practice the longest recorded time between apparent systemic death and resuscitation would stand as a working precedent Certain cardiologists of the newer school had thrown doubt on the susceptibility of the heart to direct stimulation, but in his opinion this attitude of scepticism ran counter to most definite evidence

As to the most powerful means of revival, Dr Carl Bodon, of Budapest,[1] had collected from the literature the records of 90 cases in which the various recognised stimulants had been tried, and from the study of the results he placed adrenalin first on the list He gave details of the method whereby 1 c cm of a 1 in 1000 solution of this drug could be injected into the cavity of the right ventricle, this dose being suitable for an adult in middle life For the details, which are very precise as to site of puncture and length of needle and direction of its course, the original paper must be consulted

An alternative reliable method of stimulation was cardiac massage In this connexion Dr. Sainsbury quoted cases published by Mr Girling Ball Dr Glover, and Lieut -Colonel Cook Dr Glover's case recovered with heart massage alone whereas in the other two cases both adrenalin and heart massage were employed In Dr Bodon's own case adrenalin without heart massage was successful Dr Sainsbury held that the use of adrenalin should come first on the following grounds. (1) The simplicity of the procedure and its rapid applicability (In these cases the sooner our stimulants come into use the better) (2) When effective, the response would appear to be more prompt (3) The comparatively slight risk involved (4) The general disturbance—a negligible quantity

Dr. Sainsbury concluded his address with a discussion on the ethics of resuscitation Was it always a doctor's duty to re-kindle life in a patient who might not be grateful for his recall to the troubles which he had left behind? He put forward the following cases as examples: Suppose a case of pneumonia and that we happen to know of the presence of inoperable cancer, of which the patient might be unaware, should we feel justified in seeking to resuscitate, the pneumonia having proved fatal? Or suppose that in like case the first symptoms of locomotor ataxy or of G P I, or of some other serious mental disorder should have appeared, what then? Or, leaving organic disease and entering the psychic domain, suppose the presence of a great and abiding sorrow, the existence of grave anxieties, financial or other, which on no show of likelihood could be relieved, and, further, that we know that death would be welcomed—should we still feel that we must endeavour to recall that life which an intercurrent malady had extinguished? Our duty is to cure, so we may, failing this, to prolong life, upon terms, failing this, to make life more endurable, but is it a duty to thrust life upon an unwilling recipient? We are here to relieve, not to inflict burdens These objections would not arise in the case of stillbirth, where the duty to suscitate (not *re*suscitate) is unquestionable

Finally, Dr Sainsbury pointed out that in the event of sudden, unanticipated, unprepared-for death, the case for resuscitation was overwhelmingly strong Therefore, in every hospital, in every nursing-home, and in the emergency equipment of every medical practitioner, the apparatus for intracardiac injection, together with the remedy, should be kept in readiness Adrenalin should not, however, be kept in reserve until life has departed, but in every case of heart failure, which was ceasing to respond to hypodermic or intravenous injections, intracardiac injections should be tried in order to forestall death, if possible

Discussion

Lady **Briscoe**, from her work on experimental animals, endorsed what Dr Sainsbury had said about the ease of restarting respiratory movement and the difficulty of restarting the heart She had never found cardiac massage of much help In cats accidentally killed from an overdose of chloroform, she had noticed that the diaphragm was not excitable after death, though other muscles remained excitable Was it possible that deaths from chloroform were due to direct poisoning of the respiratory muscles?

Dr **Letitia Fairfield** suggested that it was dangerous to speculate as to the ethics of resuscitation, a newly-born infant might be resuscitated to a life of many troubles, yet no one would question the doctor's duty. She proposed a vote of thanks to Dr Sainsbury, which was seconded by Dr **Hazel Gregory**, and carried with applause

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

A MEETING of this Society was held at the London School of Medicine for Women on Jan 7th and 8th, Prof J H **Dible** in the chair

Agnes R Macgregor (Edinburgh) demonstrated a series of sections through the whole lungs of infants, prepared by Mr Hamilton in the laboratory of the Royal College of Physicians, and illustrating the pathology of broncho-pneumonia She emphasised the importance of lymphangitis in extending and continuing the infection —S L **Cummins** (Cardiff) showed that coal-mining might be a dangerous occupation to a man who had previously worked in hard silica rock because coal dust accumulated to an intense degree in the silicotic lung —C G **Pope** (London) found that phenol destroys antitoxin faster than toxin, so that if the concentration of preservative phenol is raised to an effective level by freezing, a toxin-antitoxin mixture may become toxic.—J W S **Blacklock** (Glasgow) described five cases of Gaucher's disease at ages from 18 months to 38 years, and discussed the changes in the spleen, liver glands, and bone-marrow Two cases occurred in one family The condition could be diagnosed by puncture of the spleen He also pointed out that tubercle bacilli could sometimes be obtained from tissues by culture when guinea-pig inoculation gave negative results —F B **Smith** and S **Miller** (Harrogate) described an epidemic of fowl-typhoid in Yorkshire in which *Bacillus sanguinarium* was isolated, the disease affected only birds a year old or younger They also gave an account of their successful experience in the control of measles in families by injecting serum from a measles convalescent at such a time after infection that a mild but immunising attack of the disease followed, and showed specimens from a doubtful case of Hodgkin's disease —G **Hadfield** (Bristol) showed an example of primary pulmonary arterio-sclerosis and differentiated the condition from the cases due to mitral stenosis, pulmonary fibrosis, and syphilitic arteritis Intense cyanosis with polycythæmia is a constant and remarkable symptom.—J B **Duguid** (Manchester) presented statistics showing the steadily progressive increase in the prevalence of carcinoma of the lung at the Manchester Royal Infirmary during the past 50 years Males are affected much more frequently than females and an excessive proportion of the cases are by occupation drivers of road vehicles —A L **Taylor** (Leeds) gave the results of a systematic survey of the heterotopias of the alimentary tract Of the congenital group, superficial abnormalities are commonest as gastric glands in the œsophagus and intestinal mucous membrane in the stomach (found in 26 per cent of excised stomachs), the deeper series comprise adenomyoma of the stomach and aberrant bits of pancreas The acquired group arise mostly during regeneration and the repair of injuries however, of the bad keeping properties of the solution, which loses three-fourths of its strength in the course of a week

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[1] THE LANCET, 1923, i, 596

It will be a convenience to many orthopædic surgeons to have these interesting papers collected into one volume

PLASTIC SURGERY OF THE KNEE-JOINT

L'Arthroplastie du Genou By CHARLES-HENRI CHEVALLIER, Aide d'Anatomie à la Faculté de Médecine, Ancien Interne des Hopitaux de Paris Paris Masson et Cie 1926 With seven plates Pp 152 2*s*

UNTIL the last 20 years most surgeons who had to deal with serious disease of the knee-joint were well content if they could leave the patient with a stiff, straight or nearly straight limb Murphy, of Chicago, was one of the first to substitute a movable joint for ankylosis in 1901 Hoffa, Payr, and Putti, of Bologna, afterwards perfected the operation until the last-named is able to claim 84 per cent of successes in the 63 cases reported by him Dr Chevallier has now published a useful monograph in which he records the history of attempts at forming a new knee-joint, and shows by a study of experiments on animals, and of the pathology of false joints after fracture in what direction success was to be looked for The commonest cause of non-union of fractured bones appears to be the intervention or interposition of soft parts between the fragments Success in the formation of new joints in ankylosed limbs has been reached mainly by very carefully and completely covering the remodelled bone-ends with an enduring animal membrane, and for this purpose the fascia lata of the patient's own thigh has been found to be the best Strips the width of the joint, and as much as 40 cm long, have thus been transplanted, without producing muscular hernia or any permanent damage to the limbs from which they have been taken The operation may now be considered as well established, but not a routine one, nor one to be lightly undertaken An efficient musculature is essential to functional success and this operation shows once more how far more important muscles are than ligaments to the stability of a joint The strength of will and determination of the patient must play a large part in producing a good functional result after the most perfect technique in operation Without this power of the patient to forgo present ease for future benefit the art of the surgeon is unavailing

All these and other considerations are well set before his readers by Dr Chevallier, whose book concludes with a detailed description of that modification of Putti's operation which he recommends, illustrated by excellently clear plates We recommend a study of this monograph to any surgeon who is thinking of mobilising an ankylosed knee-joint

PAIN

Körperschmerzen (mit Ausnahme der Bauchschmerzen) Third edition By Prof Dr NORBERT ORTNER, Principal of the 2nd Medical Clinic at Vienna University Berlin and Vienna Urban and Schwarzenberg 1925 Pp 426 M 18

SOME years ago Prof Ortner published a treatise on abdominal pain as the first half of the first volume of a text-book entitled "Klinische Symptomatologie innerer Krankheiten" In 1919 appeared the first edition of the work under review, which is a comprehensive survey of the clinical significance of localised pain, other than abdominal, and has proved so popular that it has now reached its third edition Those who read German should find it a most useful reference book, for it is arranged in sections corresponding to different parts of the body, and deals in detail with the different ailments that different degrees and kinds of pain may denote It is in a book of this kind that the German method of patient and laborious classification is at its happiest The close attention to minute detail that makes an essay unreadable is the soul of an encyclopædia to which one turns for a specific item of information Prof Ortner is not concerned with the nature of pain, but purely with its value as a guide to diagnosis We can recall no book in English in which a physician can turn up a section on heart pain, for instance, find the disease he suspects in a marginal note, and read of exactly the variety of pain that is usually associated with that ailment, such a quickly accessible check to diagnosis should be a valuable possession to both the clinician and the general practitioner Were the book in English, it would probably attract a considerable demand, and it may be hoped that the publishers will arrange for a translation

MODERN TREATMENT OF HÆMORRHOIDS

By JOSEPH FRANKLIN MONTAGUE, M D, F A C S, of the Rectal Clinic, University and Bellevue Hospital Medical College London and New York J B Lippincott Company 1926 Pp 206 21*s*

THIS is a practical and up-to-date exposition For the most part the views which the author expresses and seeks to popularise among the medical profession in America represent the current practice in this country The work of St Mark's Hospital, London, is referred to in particular and is cited in most instances in corroboration of the author's statements One unfortunate error in this connexion is apparent On pp 150 and 256, in criticising the clamp and cautery operation as regards post-operative pain, Dr Montague quotes, inaccurately, from the figures collected by the late H Graeme Anderson In Mr Anderson's original paper the clamp and cautery operation and the ligature method were stated to have resulted in severe pain in 0 per cent and 10 per cent respectively Dr Montague records these figures as 70 per cent and 33 per cent

The treatment of piles by operation, injection, radium and electrotherapeutic methods are described clearly and adequately, with the indications for the different methods The author prefers for the injection treatment of internal hæmorrhoids a 10 per cent solution of cresylic or carbolic acids to the quinine-urea which seems to be the favourite of most American proctologists Treatment by burying radium emanation seeds into the piles has given promising results in the way of fibrosis, and a further series will be reported on later Complications and sequelæ likely to arise from the different procedures are discussed The author appears to be more apprehensive of hæmorrhage after the clamp and cautery operation than our experience suggests, he advocates the insertion of a mattress suture of catgut into the stump before removing the clamp

The print is large and clear, and the illustrations are satisfactory

PSYCHOLOGY AND ETHNOLOGY

By W. H R RIVERS London Kegan Paul, Trench, Trubner and Co 1926 Pp 324 15*s*

THE "International Library of Psychology, Philosophy, and Scientific Method," appearing under the general editorship of Mr C K Ogden, of Magdalene College, Cambridge, of which the first 50 volumes are announced, is a tremendous undertaking When it is complete it will form not a systematic treatise *de omnibus rebus et quibusdam aliis*, but a collection of monographs on such topics—and they are many—which may come under its title The present volume is a collection of 21 essays, published and unpublished, by the late Dr Rivers, and it will be read with the same feelings of confidence and charm which his other writings have brought They are exceptionally characteristic, for they exhibit parts of his pilgrimage through medicine and psychology to the realisation that the essentials of anthropology—of which at one time he took little account—are at bottom psychological And it is this intimate admission to the progress of a mind so keen and unprejudiced that makes the book especially worth reading As far

Reviews and Notices of Books.

NASAL ACCESSORY SINUSES

Pathology and Treatment of the Inflammatory Diseases of the Nasal Accessory Sinuses Fifth edition By Prof Dr M HAJEK, Chief of the Laryngo-Rhino-Otological Clinic, University of Vienna Translated and edited by JOSEPH D HEITGER, A B, M D, Louisville, Kentucky, and FRENCH K HANSEL, M D, M S, St Louis, Missouri London Henry Kimpton 1926 Two vols Pp 294 and 408 75s

IT is well that this work has been made accessible in an English translation, for Dr Hajek has been a pioneer in the rapid advance of our knowledge of disease of the nasal accessory sinuses, and is to-day one of the leading authorities on the subject The translation is good, and only rarely has too close an adherence to the German idiom rendered the phraseology a little obscure The first edition in German was published in 1898, and, as the translators say, it placed the pathology and therapeutics of suppurative affections of the nasal accessory sinuses for the first time on a solid foundation The work presents an authoritative account of the anatomy, pathology, and treatment of these diseases, it is well written and arranged, and is as complete as a book on a subject of such variety can well be expected to be A few methods of treatment in general use here are omitted, among which is Dr Watson Williams's method of opening the frontal sinus intranasally The first 159 pages are occupied by general considerations, a clear description of the detailed anatomy of the regions concerned is first given, and is followed by chapters on pathogenesis, symptomatology and diagnosis, the latter including a short but good account of radiographic methods The remainder of the first volume, and the greater part of the second, is taken up by the description of inflammatory diseases of the individual sinuses and their treatment The methods advocated are eminently sane and are mostly those in general use, largely because Dr Hajek has himself done much to standardise them We note that he states that the Caldwell-Luc operation on the maxillary antrum may be performed, under local anæsthesia, in the out-patient department, and that hospital confinement is unnecessary Chapters on combined affections of the sinuses and on complications involving the eye and orbit and the brain and cranial cavity are useful There is an appendix on affections of the sinuses associated with ozæna, Dr Hajek denies that he is a keen supporter of the theory that ozæna is caused by accessory sinus infection; he confines himself here to a demonstration that in ozæna there are often areas of localised secretion, and to the analysis of cases in which the localised secretion was found in accessory sinuses and elsewhere

The volumes are beautifully produced, good illustrations being plentiful, there is a useful index and a very full list of references to literature, which occupies 33 pages The English translation is a noteworthy addition to rhinological literature

SCOLIOSIS

Rotary Lateral Curvature of the Spine By SAMUEL KLEINBERG, M D, F A C S, Assistant Surgeon, New York Hospital for Ruptured and Crippled, Member of the American Orthopædic Association New York Paul B Hoeber, Inc London Humphrey Milford, 1926 Pp 311 30s

READERS of works on scoliosis will turn their attention first to what the author has to offer under the head of prognosis Dr Kleinberg tells us that "the very mild cases of rigid scoliosis can be satisfactorily treated and often cured by gymnastic exercises of one type or another" In our experience, however, no *rigid scoliosis* can be properly called "very mild," few cases can be improved, and fewer cured The author adds "The moderate types of scoliosis can be markedly improved in more than 60 per cent of the cases They can practically always be arrested . The severe types of cases can be somewhat improved and may be prevented from becoming worse" These views appear to us decidedly optimistic Too many of such cases run their course, despite all that can be done by surgeons, instrument-makers, and physiotherapeutists

Dr Kleinberg describes the normal anatomy of the spinal column, the classification and pathology of the various types of scoliosis, and the methods of treatment which have given him satisfaction. The gymnastic exercises described are likely to be of use in cases of weak spines with what the author calls functional deformity—i e, a slight habitual curve which can be corrected by the patient or the masseuse Forcible correction is described and discussed, as well as the fixation method introduced by Hibbs, the object of which is to ankylose the vertebræ through their spinous processes by means of bone grafts such as were introduced by Albee for treatment of Pott's disease In place of cumbrous plaster jackets Dr Kleinberg uses a steel brace of his own devising The book is well printed and well illustrated with 140 figures

AFFECTIONS OF THE VERTEBRAL COLUMN

Études sur les Affections de la Colonne Vertébrale By Dr ANDRÉ LÉRI, Professeur Agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital de la Charité Paris Masson et Cie 1926 Pp 526 7s. 6d

THIS book of over 500 pages and 115 figures consists of a collection of papers—possibly with additions—which have been contributed by the author to the medical societies and the medical press of Paris The name of Dr Pierre Marie, who has contributed a preface, is closely associated with the disease known in this country as spondylitis deformans and by various cognomens, and Prof Léri is an enthusiastic advocate of the rheumatic ætiology of this, as of various other affections of the vertebral column, and of the muscles of the trunk and shoulder girdle The first section of the book, on anomalies and disorders of development, contains some interesting records of cases of trophic œdema and incontinence of urine which are attributed to spina bifida occulta. An operation designed to free the cord or the nerves of the cauda from constriction by bands of fibrous tissue is described, and good results are claimed for it Other sections on defective development of the bones resulting in sacralisation of lumbar vertebræ, numerical defect of vertebræ, defects of the sacrum, and their results are worth study Throughout the book the importance of radiographic evidence is rightly insisted upon. The evidence offered of the traumatic nature of the affections described in the second section is, in our opinion, insufficient The gradual ossification of ligaments and the slowly progressive palsies which are attributed to compression are not generally recognised as the result of long previous injury The third section on ankylosing affections of the spine and the following one on localised forms of vertebral rheumatism deal with matter unfamiliar to many British readers In this country we should require stronger evidence of pressure on the spinal nerves than is brought forward by Prof Léri before admitting that such disabilities as palsy and atrophy of isolated muscles or groups of muscles of the shoulder, neck, &c, are due to rheumatic affection of the bones and ligaments of the vertebral column The writer claims to have got good results in cases of stiff spine attributed to rheumatism by the injection of thorium X In such a crippling and generally hopeless condition as spondylitis deformans even desperate remedies might be tried, and it may be as well to put on record here that Prof Léri uses it in the form of bromide of thorium X in a physiological serum, injected every week subcutaneously or intramuscularly in doses of 100 to 300 microgrammes He warns his readers,

THE LANCET.

NDON: SATURDAY, JANUARY 15, 1927.

PULMONARY EMBOLISM

LMONARY embolism is one of the most artening accidents which may happen after an ation No surgeon can foretell far less forestall ccurrence. for the underlying causal pathology most completely unknown Dr W. A Lister here in this issue contributes a statistical study amples which have occurred in the practice of London Hospital He is able to draw certain usions Briefly his figures seem to prove that olism is dependent upon three factors age post-ative muscular immobility which allows of venous ation, and interference with diaphragmatic ration. by which the suction effect of inspiration the large abdominal veins is lessened Thus olism is uncommon after such a large dissection adical removal of the breast for carcinoma, and operations upon the bladder. rectum or female al organs it is almost confined to those cases e an abdominal incision has been made This ingly confirms the experience at the Mayo Clinic vaginal and abdominal hysterectomy where the facts were noted Dr Lister does not record instance of embolism after nephrectomy. such no doubt do occur though they would seem to ery uncommon If interference with diaphrag-c respiration is such an important factor in the ence of pulmonary embolism it should, one would occur more commonly after operations upon upper abdomen than after those upon the pelvic s. But this does not appear to be so with any ancy, for although the proportional incidence mbolism after duodenal and gastric operations 7 per cent. and after gynæcological operations er cent. it rises after operations upon the bladder. ra, and prostate to 16 8 per cent, which seems than can be accounted for by the higher average f the urological patients (56 years) compared with upper abdominal patients (44 years). One very rtant and unexpected conclusion is the absence y evidence for regarding sepsis as playing a part e incidence of pulmonary embolism This is iently surprising and there are numerous other omena connected with this serious complication h are equally interesting and inexplicable We ot know why the clot should originate so often e left iliac vein or why it does not occur equally only on the other side Often enough we cannot find the site of origin when it is reasonable to e that a minute clot, leaving no trace on the f the vein, has been held up in the cavities of the amongst the chordæ tendineæ, or in the auricular ndage. until it has reached a large size before dislodged again into the circulation Two however, emerge from Dr Lister's study, it seem to be right to encourage free movements e limbs and to insist upon breathing exercises every abdominal intervention.

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DROPLET INFECTION AND CARRIERS

The little drops of water have, it seems triumphed over the little grains of dust in current teaching regarding the source of infection in bacterial disease. It is nearly 40 years since Flügge insisted that it was the shower of sputum droplets rather than the wafting of dried bacilli, championed by Fränkel, which constituted the chief danger of contracting tuberculosis, and although in this disease the as they may be classified, three of the papers are medical about five are psychological, and ten deal with the evidence which may be derived from habits and customs that early human communities were much less isolated than is often supposed The papers were prepared for the press by Mr H J Massingham and they are edited by Prof G Elliot Smith, who contributes a graceful introduction, tinged with some glee at Dr Rivers's conversion to "diffusionist" views

PUBLISHED PAPERS 1925–26

By Members of the Staff of the Middlesex Hospital Medical School, London

A PORTION of the year's clinical and research work at the Middlesex Hospital is represented by the 27 reprints here collected into one volume They fall naturally into certain groups which serve as an indication of the trend of modern scientific medicine On the biochemical side Prof E C Dodds reports various important advances In a paper with Prof Swale Vincent and Dr F Dickens he describes the production of insulin from the pancreas of teleostean fishes, with Dr Dickens and Dr S Wright he discusses the preparation and standardisation of the ovarian hormone, and he carries the investigation into the ætiology of dental caries a stage further by an account of the chemical composition of the saliva Prof J McIntosh, Mr Warwick James, and Dr P Lazarus-Barlow deal with other aspects of the same investigation in another paper In connexion with radiology, Mr Sampson Handley describes the use of radium in certain aspects of surgery Dr J H D Webster, Dr J. P Thierens, and Dr F G Nicholas report the results of the treatment of operable cancer of the breast with radiation in 15 cases, and a valuable paper on the organisation of a hospital radium service is included by Prof S Russ and Mrs R H Somerset On the clinical side various cases are recorded Dr H G Estcourt gives a good account of Gradenigo's syndrome and Dr A Moncrieff reviews the recent literature on tuberculosis in childhood Prof Swale Vincent's contributions to endocrinology are represented in three papers, two of which are devoted to the uses and abuses of endocrine therapy Such a valuable collection of papers would seem worthy of better production than that of a bound volume of variously shaped reprints

THEORETICAL BIOLOGY

By J VON UEXKÜLL London Kegan Paul, Trench, Trubner and Co 1926 Pp 362 18*s*

A MATERIALISTIC view of the universe has one great advantage over a mystical interpretation—it is easier to state and much easier to understand This book is described as an attempt to extend the doctrines of Kant's philosophy into the realm of biological thought, it is certainly not materialistic, and it is difficult to make out exactly what the author means He appears to argue that the physicist's world is meaningless and without purpose, and that the distinctive feature of the live world is that it is arranged in conformity with plan He deplores the overwhelming influence of Darwinism—which with greater respect might be written darwinism—because it has made us overlook the meaning of live things, and has left nothing but mechanical and chemical processes which proceed in their unwitting way There is probably much of interest to be quarried from the book The author's imagery of live things consisting of an essential framework of function in which a variable structure is arranged—his reminder of Roux's great saying that the goal is more certain than the route—his summary of the relation of structure and function in the statement that within its limitations each organism is absolutely perfect, there is much food here for reflection But his arguments (or possibly his translator's version of them) could surely have been put forward more intelligibly

VENEREAL DISEASES

The Diagnosis and Treatment of Venereal Diseases in General Practice Third edition By L W HARRISON, D S O, M B, F R C P Edin, Director of Venereal Department, St Thomas's Hospital London Oxford University Press 1926 Pp 558 25*s*

THE third edition of Colonel Harrison's book has been increased in size, though some of the sections of the earlier editions have been skilfully condensed It follows that valuable new material has been added The book is comprehensive and readable while being free from dogmatism. It is full of practical information as regards the straightforward treatment of venereal diseases, and advice is added as to the best method of dealing with the various complications which may arise during arsenobenzol or bismuth therapy As the volume is designed for the practitioner, it would probably have been advisable to include the names of a few bismuth preparations and their percentage bismuth-content The expert has his own favourite preparations, but the practitioner desirous of giving a course of bismuth injections would doubtless welcome guidance The communication from a member of Colonel Harrison's staff at St Thomas's Hospital V D Clinic, which appears in this issue of THE LANCET (p 148), is timely in this connexion A most valuable chapter on the medico-legal aspect of venereal diseases is added by Dr F G Crookshank The latest approved serum tests for syphilis (Sachs-Georgi, Sigma, and Kahn) are described in appendices where also some newer arsenical preparations of value in special forms of syphilis are mentioned Treatment of gonorrhœa by protein shock and the place of diathermy as an aid to treatment are referred to A general account of the methods of treatment of syphilis and gonorrhœa used in St Thomas's Hospital V D Clinic is included for the first time

This work should be in the library of every modern practitioner

HIGH BLOOD PRESSURE

Second edition Revised and enlarged By J F HALLS DALLY, M A, M D, B Ch Camb, M R C P Lond, Physician to the Mount Vernon Hospital for Tuberculosis and Diseases of the Heart and Lungs London William Heinemann (Medical Books), Ltd 1926 Pp 196 12*s* 6*d*

THIS book has undergone thorough revision and by incorporation of the most recent work has become larger by some 40 pages A notable addition is an appendix on the Treatment of Arterial Pressure by Baths and Waters, contributed by Dr R Fortescue Fox In view of the doubtful meaning and loose employment of such terms as hyperpiesis, hyperpiesia and hypertonia Dr Halls Dally has tried to clarify their relations by a new classification based on fundamental physical laws, the result is a valuable chapter, albeit one which requires close reading Considering that the study of high blood pressure is comparatively recent and views on it are therefore constantly liable to modification, the book is clearly written, though perhaps there is too much detail The importance of the diastolic pressure in diagnosis and prognosis is well set out, whilst the necessity for regarding at all times the whole pressure picture, rather than a single phase of it, receives due emphasis Especially good are the chapters devoted to treatment, to problems connected with life insurance, and to the value, little recognised, of blood pressure readings in pulmonary tuberculosis Indeed, there is little to which exception can be taken, though the statement (on p 101) that urea is harmless will probably require modification in future editions

To sum up, this is a useful summary of our knowledge on a subject of ever-increasing importance Whilst written primarily for practitioners it contains much—e g, an excellent bibliography—which will appeal to those who follow the narrower paths of medical specialisation

THE LANCET.

NDON. SATURDAY, JANUARY 15, 1927.

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The little drops of water have, it seems, triumphed over the little grains of dust in current teaching regarding the source of *infection* in bacterial disease It is nearly 40 years since Flugge insisted that it was the shower of sputum droplets rather than the wafting of dried bacilli, championed by Fraenkel, which constituted the chief danger of contracting tuberculosis, and although in this disease the controversy may not yet have entirely died down, droplet infection is now accepted as the chief conveyer of the swifter infectious diseases Observations made by Capt J A GLOVER[1] on infection in cerebro-spinal fever were the starting-point of the more recent work The weakest link in the chain of infection lies in the transit of the virus in air-borne droplets from naso-pharynx to naso-pharynx, and Dr GLOVER showed how small an increase in the distance between the beds was sufficient to check the spread of infection in barrack dormitories Surg-Comdr SHELDON F DUDLEY, R N, remarks in a report[2] just issued that the study of infectious disease with its constantly changing distribution in time and space is really a problem in the physiology, ecology, and bionomics of bacteria The study of infection resolves itself into a study of three velocities (1) the velocity at which the infective material is received by the host, (2) the velocity at which it is destroyed by the host, and (3) the velocity at which the host s resistance alters in a positive or negative direction The new-born babe, however, does not need to acquire its resistance to an infected environment entirely by its own effort, it possesses a remarkable ready-made herd-immunity This transmitted passive immunity lasts long enough to tide the infant over its early unprotected stage, it is no longer operative at the age covered by Dr DUDLEY's studies

These studies were conducted in a semi-isolated community of about 1000 lads in naval training at Greenwich, varying in age from 11½ to 15½ years, and occupying sleeping quarters consisting of nine large airy rooms, each containing 70 to 126 beds, for the most part cross-ventilated and with a floor space averaging 40 sq ft and a gross air space averaging 500 to 600 cub ft per bed The distance between the ends of the beds was generally about a foot, the boys sleeping alternately head to foot In this community during the period 1912–24, or 38 school terms in all, the annual attack-rate reckoned per 10,000 boys was as follows Sore throat, 1378 (or more), influenza, 1200, scarlet fever, 334, diphtheria, 224, rubella, 140, mumps, 104, measles, 27, chicken-pox, 23, cerebro-spinal fever, 2 These attack rates, it will be noted, are much higher than among the general population, although length of residence altered the herd-immunity, reducing the rapidity of spread among the older residents Segregation was, however, completely successful when it could be carried out, even in the case of influenza, for there was none among 80 new boys during their period of isolation at a time when influenza was epidemic in the main school New entries join in batches of 30–50 two or three times a term and are kept quite separate for 3–4 weeks in a separate building with grounds of its own This experience with isolation agrees with that of the Australian naval authorities, that absolute quarantine of ships, although it may be inconvenient, is certainly effective in preventing the spread, even of influenza, from ship to ship or shore The chief anxiety at Greenwich is in regard to diphtheria and scarlatina Over the whole period the incidence of diphtheria was more than four times that prevailing in a slightly younger group of London school-children, and in 1921 as much as 20 times greater, although on entry these children possessed the degree of herd-immunity common to their age It follows that the best specimens of council school-boys, transferred to the new environment at the Naval School, suffered from a morbidity more than fourfold that of boys who remained in the original environment The figures for scarlet fever told the same story, and confirm Dr DUDLEY's view that most microbic dissemination takes place in the sleeping quarters, where time is provided for the collection of an infective dose of parasites Only one outbreak of mumps of any magnitude occurred in the 22 terms, the incubation period is so long that, unless the outbreak starts very early, it is liable to be cut short by the intervention of holidays before a sufficient number of centres of infection have developed Rubella was responsible for two outbreaks with an onset so explosive that it could only be explained by supposing that the recorded cases were infected by missed cases or carriers The chief practical lesson which Dr DUDLEY draws is that the individuals of a community should be isolated from each other to the greatest extent possible in their sleeping quarters GLOVER s work showed that meningitis could be prevented and the meningococcus carrier-rate reduced to about 6 per cent by increasing the distance between adjacent beds to 2 ft 6 in, a distance insufficient to prevent outbreaks of diphtheria or scarlet fever, whereas by the time the recruits go to sea herd immunity for these infections has become so high that no serious outbreak has occurred in any British warship in spite of the close sleeping conditions (Diphtheria did, however spread from hammock to hammock among the unsalted crew of an American battleship at Scapa Flow) The experience of bed-isolation teaches that young children will rarely infect each other with diphtheria or scarlet fever when there is 9 ft between the beds, although even 12 ft will not prevent cross infection with early measles and chicken pox It is, therefore, impossible to lay down any standard distance that will prevent the spread of infectious disease between beds for the minimum distance varies with the variety of host and parasite and with the previous amount of microbic experience possessed by the host The best method of reducing morbidity from droplet dissemination would, of course, be a separate sleeping room for each individual Otherwise, even when the Greenwich school moves into country quarters and the occasions on which fresh infections are introduced are fewer, a bigger attack-rate at longer intervals may become the rule among a population whose herd immunity has become low

In regard to this herd-immunity, Dr DUDLEY makes many interesting suggestions As we began by mentioning he finds three variables necessary to explain the relation between the carrier and the herd-immunity which he produces A certain mass of infective agent is necessary to produce an illness This mass may be received at various rates by an individual who can only destroy the virus at a certain rate If this difference is positive, illness will supervene, provided the stay in the infected atmosphere is long enough If this velocity is negative no actual illness occurs although the defensive mechanism of the recipient host may be stimulated so as to make him immune to more serious infection later Other factors being equal, it will depend on the distance of a susceptible host from a distributor of parasites as to whether the host becomes a case, a carrier, or an immune person Acting in a suitable environment, carriers may prevent large disease outbreaks by supplying subinfective doses of infectious material to the more susceptible members of a population The whole problem becomes simpler if the carrier state is envisaged as the mildest form of a clinical disease entity—namely, as a disease without symptoms

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[1] Medical Research Council Special Report Series No 50 Studies in the Bacteriology, Preventive Control and Specific Treatment of Cerebro spinal Fever among the Military Forces 1915–19

[2] Medical Research Council Special Report Series No 111 The Spread of Droplet Infection in Semi isolated Communities

THE SPAHLINGER TREATMENT

A FORTNIGHT ago we published a detailed clinical record by Dr THOMAS NELSON of certain cases treated by the Spahlinger method at St George's Hospital 12 years ago. This communication was in pursuance of a settled policy of printing, without curtailment or comment, all records of cases, successful or unsuccessful, treated by this method, when submitted to us by medical men. As this policy has been criticised, we take the opportunity of setting out again the principles which dictated it, they are contained in a leading article which appeared in THE LANCET of Feb 17th, 1923, and is here reprinted word for word.

The position of the Spahlinger treatment has reached a stage which would be comic, were it not so supremely tragic—our French neighbours would certainly term it an *affaire*. The bactero-therapeutic institute at Carouge, near Geneva, is fully equipped with the most recent apparatus for serological and bacteriological research, it includes an experimental farm, and the whole installation would reflect credit upon a large scientific institution or university. It has been controlled and directed for ten years past by Mr HENRI SPAHLINGER, who has trained an efficient staff in his own special methods. Precisely what his claims are, in the cure of tuberculosis, were set out in his own words in our issue of Jan 7th, 1922. All who have visited the institute—and the visitors have been many and distinguished—have been favourably impressed with the character of Mr SPAHLINGER'S work and with his sincere desire to put his remedies at the disposal of mankind. The remedy has not yet reached the stage of proved value and necessity. Mr SPAHLINGER himself does not pose as a clinician, and the clinical trials of his remedies have been spread over several countries and have nowhere been carried out under research conditions. It is well known that the British Ministry of Health is prepared actively to encourage the experimental trial of the Spahlinger preparations under scientific supervision, so soon as supplies of the remedy are available for the purpose, and the British Red Cross has gone so far as to vote a sum of £30,000 to enable Mr SPAHLINGER to produce his remedies to a larger extent so that they may be tried in this country.

The issue being thus clear-cut, it is with the keenest regret that we have noted during the last week evidences of a press campaign to raise funds in this country on the ground that the reports already published prove beyond doubt the great national importance of the movement. A Memorandum ostensibly prepared by several medical men as an authoritative statement of facts, contains such regrettable exaggerations as that the methods of SPAHLINGER make it clear that tuberculosis can be prevented, and that when the treatment is over there is no trace of the disease remaining. There is a suggestion that, had they not been prevented from doing so by the fear of "oblique advertisement" (in the sense of the General Medical Council), many important signatures would have been appended to this statement. It seems to us improper to infer the weight of medical opinion in such a way. The Ministry of Health has found it necessary to reissue a statement of its position—namely, that up to the present the Minister has neither approved, nor disapproved, of the treatment.

The Memorandum justifies the appeal for funds by the grave danger from financial pressure to which Mr SPAHLINGER'S work is now exposed. We can only trust that he will submit to the independent investigation of his remedy which would put him right with the medical world and relieve him of his immediate difficulties. Could some arrangement be made to carry out this investigation, with the usual controls at one or other of the research institutes in this country, two objects would be served (1) the money could be raised without risk of forfeit, and (2) the control would bring conviction to those among whom it is carried out. We appeal to Mr SPAHLINGER in the name of humanity, no less than in that of science, to consent to this course.

The situation does not seem to have altered appreciably during the four years since these words were written. The money has indeed been returned to the Red Cross, but the offer by the Minister of Health of a thorough test of Mr. SPAHLINGER'S remedies in this country has never been accepted by him although Sir W A ROBINSON has stated within the last few days that Mr SPAHLINGER is well aware of the Ministry's willingness to arrange for an immediate investigation and test of his remedy at any time. Mr SPAHLINGER himself writes of visiting England early this year for the purpose of carrying out demonstrations with his bovine vaccine, the sale of which can soon provide (as he has stated in a correspondence with Sir WARDEN CHILCOTT in the *Daily Express*) all the funds required. There is, of course, nothing new in a claim to have immunised cattle against experimental infection. v. BEHRING'S success with his bovo-vaccine in 1902 has been since confirmed by R KOCH, P H RÖMER and T M KLIMMER in Germany, L PEARSON in America, A CALMETTE and C GUERIN in France, but we believe that neither they nor anyone else has yet succeeded in establishing permanent immunity to accidental infection from diseased cattle in the same shed. We again appeal to Mr SPAHLINGER to submit his remedies to independent investigation, which is the only way to right his position with the medical world, and thus relieve him of his difficulties.

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STANDING MUTE OF MALICE

ON Jan 6th at the West Sussex Quarter Sessions at Chichester, a man charged with breaking into and entering the Territorial Drill Hall at Worthing and stealing money and cigarettes therefrom refused to reply to the charge. It was then necessary to empanel a jury to decide whether he was 'mute of malice' or "mute by the visitation of God". Dr W WATSON, senior medical officer of Brixton Prison, who had been keeping the accused man under observation, gave evidence to the effect that the prisoner had spoken normally until four days before the trial but had suddenly adopted this strange silence after receiving a letter which seemed to upset him. The jury took the view that the accused could speak if he liked, he was found guilty and was sentenced to 18 months hard labour. According to the report of the case in the *Times*, he never spoke once during the trial.

The psychology of the individual in the Chichester case is interesting, so, too, is the national psychology as revealed in the strange story of English criminal procedure which the words "standing mute of malice" recall. If we go far enough back in our history we find in England, as in so many other primitive communities, that the test of guilt or innocence is governed by some form of ordeal. It is a judgment of divine providence. The Church has its ritual for consecrating the elements of fire or water which are to reveal the truth. The water in the pit, says MAITLAND, is adjured to receive the innocent and reject the guilty. He who sinks is safe, he who floats is lost. The red-hot iron, 1 lb in weight, must be lifted and carried three paces. The hand that held it is then sealed up in a cloth, three days later the seal is broken. Is the hand clean or foul? A blister 'as large as half a walnut' is fatal. We do not know how the tests worked in practice, but WILLIAM RUFUS was sceptical enough to say, "God shall no longer judge these matters; I will do it myself." The Norman conquest had introduced another form of ordeal—the judicial combat. Accuser and accused fought it out, the accuser undertaking to prove by his body the truth of his charge. Meanwhile, there was a royal system of inquest, a primitive form of trial by jury, which made headway, being preferred to the ordeal by battle which was never a poor man's remedy and would not work if the appellant was a woman, a child, or a cripple. In 1215 the Lateran Council forbade the ordeal, and Rome at that time had power enough to dictate to England. With the ordeal disappearing and trial by jury taking its place, it was, nevertheless, some years before the new judicial procedure was standardised. If a man refused to "put himself upon his country"—i.e., to stand his trial before a jury of his peers—there was an inclination to regard his case as undefended and himself as guilty. It was one of the customs of Normandy that a man charged with murder was kept in prison for a year and a day with little to eat or drink unless he submitted to the verdict of an inquest. In England the suspected felon was similarly placed in rigorous confinement, though without the time-limit of a year and a day; he was put in irons and made to lie on the ground in the worst place in the prison; he had a little bread one day and a little water the next. All the while there was a notion that this was not quite fair. The man had been deprived of his ancient, natural right to a judgment of God. However, if he would not agree to be tried by jury, he could be starved into consent. A few years later worse barbarities were perpetrated in the name of justice. The man was laid out naked upon the floor and heavy weights were piled upon his chest until the poor wretch agreed to abide by the verdict of his fellows. This was called the *peine forte et dure*, and men were stubborn enough, even in the seventeenth century, to be thus pressed to death unconvicted rather than run the risk of being hanged as felons in which case their property would be confiscated and their children would be penniless.

Alienists who desire to see a change in the present legal view of criminal responsibility of the insane will know that the law is marvellously conservative. The history of the *peine forte et dure* illustrates this same conservatism, for that hideous piece of legal cruelty was not formally abolished till 1772, when refusal to plead in cases of felony was made equivalent to a plea of "guilty." Another change took place in 1827 when refusal to plead, if the defendant was not mute by the visitation of God, involved the entry of a plea of "not guilty." This meant that the jury must first say (as in the recent case at Chichester) whether the defendant stands mute of malice or is mute by the visitation of God. If found mute of malice, then he is tried as on a plea of "not guilty." If mute by the visitation of God, the jury must further say if he is fit to plead and able to understand the proceeding at the trial. If they reply in the negative, he is treated as insane. To proceed with the trial in such cases would be a burlesque, but it is naturally deemed a strong step to order a man to be confined as a criminal lunatic when he has not been found to have committed any criminal offence. The standing orders of the Prison Commissioners recommend that a prisoner should be left to stand his trial unless there are strong reasons to the contrary. The Atkin Committee, appointed to examine the general relation of insanity and crime after the case of RONALD TRUE, approved these standing orders and added its opinion that an accused person should never—except in the plainest cases—be found unfit to plead except upon the evidence of at least two doctors. The Committee also advised that there should be no appeal from a finding of unfitness to plead. The verdict "mute of malice," therefore, is a link with far-off times when it was first found necessary to insist that an accused person should make his plea one way or the other. To round off the story, it remains to add that ordeal by battle lingered on as late as the year 1819. Described in the fourteenth century as though it was already a curious anachronism, mentioned as obsolete by a lawyer in the reign of ELIZABETH, this rusty relic of the law was resuscitated in Ireland in 1815 where a criminal claimed his right to do battle with his accuser and thereby escaped. Four years later, in England, ABRAHAM THORNTON had recourse to it and thus evaded the consequences of a conviction for murder. This was too much for the national conscience, and ordeal by battle was formally repealed by Parliament in the following year. Changes in English criminal law, it will be seen, come slowly.

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EBERTH

THE name of Carl Joseph Eberth will long be remembered because he was the first to describe the causal organism of typhoid fever. Born in 1835 he had made his mark in pathology long before his great discovery was announced. His early work in Würzburg was mainly on the smaller blood-vessels and especially on the development of capillaries in the skin and lung. Studies of the bacterial mycoses led up to the search for some organism constantly associated with the clinical manifestations of typhoid fever, and in Virchow's *Archiv* in 1881 he described rod-like bodies "about the same size as those which are met with in decomposing blood, but differing from them in shape and staining properties." In six out of 17 cases of typhoid fever he was able to demonstrate the bacilli, finding them most readily in the intestine and lymph-glands at an early stage of the infection. These observations left no doubt that the bacillus was in some way connected with the disease, although it required the subsequent experimental investigation of Gaffky to demonstrate them as the actual vehicle of contagion. Apart from his work on typhoid, Eberth wrote on various aspects of pathology, notably on amyloid degeneration and malignancy. Many years of his life were spent in Zurich where he was appointed prosector in the University and later professor of pathology at the Veterinary College. In 1881, however, he returned to Prussia and occupied the chair of histology and pathological anatomy in the University of Halle. He died in Berlin last month in his 92nd year.

STREET ACCIDENTS IN MANCHESTER.—There were 76 fatal street accidents in Manchester in 1926, as compared with 59 in 1925. The non-fatal accidents in 1926 numbered 2045 as compared with 1727 in 1925, and 1655 in 1924. This means an increase of 300 accidents in 1926. One remarkable feature of the accidents reported was that no fewer than 425 non-fatal and 25 fatal accidents—or about 20 per cent. of the whole number reported to the police—were due to persons stepping off the footpaths in front of approaching vehicles. During the period of the general strike in 1926 there was an increase of all accidents of about 40 per cent. over the corresponding period in 1925. In the 2045 non-fatal accidents during the year 496 of the injured persons were under 15 years of age. In the street accidents of 1926, the following vehicles were involved: tramcars, 291; taxicabs, 74; private motor-cars, 787; motor-cycles, 327; other mechanically-propelled vehicles, 328; horse-drawn vehicles, 122; and pedal cycles, 532. Whilst there were 33 non-fatal accidents attributable to pillion-riding, no fatal accidents from this cause were reported. During 1926 drivers' licences were issued to no less than 31,183 residents in the city—the number being over 4 per cent. of the total population.

Annotations.

"Ne quid nimis"

RACIAL IMMUNITY.

To recent issues of *Man* Colonel J Cunningham, I.M S Director of the King Institute in Madras, has contributed a review[1] of the factors of racial susceptibility and immunity to disease The problem has attracted attention ever since medical men with a Western training began to move about the world and observe the differences with which the various diseases they found affected the several varieties of mankind There are in the literature a good many statements that susceptibility to this or that infection varies with race, but only recently have workers realised the difficulties of being sure that these variations are really linked with the anatomical and physiological characters which make up racial differences, rather than with the sanitary state and circumstances the habits and modes of life which normally accompany them It is easy enough to show that, starting with a single pair of guinea-pigs, races may soon be obtained by in-breeding which differ in the most definite way in their susceptibility to inoculated tubercle In such experiments the animals live side by side. their surroundings are identical, and they differ in nothing but their genetic constitution But in man the world seldom if ever yields us a comparable example of two races living side by side with no significant difference except their inborn nature It is of course, obvious that the rarity of scarlet fever and the frequency of malaria in India tell us nothing of the relative susceptibility of English and Indians to these diseases Nor does a direct comparison of Englishman and Indian in India give us a straightforward answer Beri-beri for example is almost unknown except in natives, and if their habit of getting a large part of their energy from decorticated rice is not the whole explanation of the incidence of the disease among them it gives us a satisfying reason why the English living alongside them escape it altogether Similarly, kangri cancer in Cashmir is no more truly racial than is mule-spinners' cancer in Lancashire It is evident that the two races living in the same country must live the same lives if valid comparisons are to be obtained Even if superficially there is considerable similarity, detailed knowledge may bring to light effective differences Of this Colonel Cunningham gives a good example in a town in Southern India, where Hindus and Mahommedans lived in the closest proximity and yet kala-azar occurred only among the latter who were traders and moved about the country while the agricultural Hindus stayed at home where social and religious barriers prevented any close personal intercourse of one sect with the other Similarly. it is not fair to deduce racial differences in susceptibility from a comparison of the negroes and whites in the United States without a full appreciation of the generally deteriorated position of the coloured part of the population, industrially and socially, and all the consequences which that involves It seems likely that the almost universal occurrence of rickets in negro babies in New York is as near a racial character as can be expected, for it is no doubt largely due to their pigmented skins which are beyond their control but without further investigation we cannot measure the concurrent importance of their financial and residential condition over which they and their fellows could exercise some choice Finally. Colonel Cunningham mentions another factor of great importance which is necessarily more complicated It is now being realised more and more that human populations and especially dense urban populations, have come into some sort of balance with the infectious diseases to which they are exposed partly by progressive selection and partly by active immunisation by subinfections in early life The population of London for example, has become as a whole resistant to measles just as the rat population of India has, during the last 30 years, become resistant to plague If Londoners had been living in the Faroe Islands in 1846 they would not have suffered very much from the epidemic of measles which smote three-quarters of the natives It follows that two races living together cannot be properly compared for resistance unless they have been equally selected and immunised, in other words, their past history is germane as well as their present circumstances Considerations of this kind may well explain the easy susceptibility of negroes to tuberculosis, in the end they may become as resistant as the whites living with them. This effect of exposure to infection also has its influence on the parasite, though the change will generally take place much more quickly The spirillum of a primary attack of relapsing fever is different racially from the spirillum which is obtained from a relapse in the same patient, the parasite has adapted itself to the resistance of its host by selective breeding The balance of an established infectious disease concerns, therefore, both parasite and host. Such are some of the difficulties which surround the solution of a most interesting problem, they are not less than the obscurities in which most questions of human energies are involved But if the difficulties and necessary precautions are clearly realised, there is no reason why they should not be solved

INTRACARDIAL INJECTION OF ADRENALIN

METHODS of reanimating a presumably healthy heart that has suddenly ceased to beat, as for example, in syncope during anæsthesia, have been many and various and their multiplicity indicates the uncertainty of their results The statistics collected by Dr Carl Bodon, recently quoted by Dr. Harrington Sainsbury (see p 134 of this issue of THE LANCET), and the experimental researches of R Gottlieb and J Winter on the direct injection of adrenalin into the heart itself seem to prove that this method has certain indisputable advantages over simple massage, electrical stimulation, and injection of saline A review of the whole subject by Prof L Manfredo[1] will interest all who have been faced with the need of reanimating a heart in a temporary state of suspended function The stimulating effect of adrenalin on the heart induced Gottlieb to try this drug for the purpose and he succeeded by using intravenous injections in restoring action in rabbits poisoned by chloral, chloroform, or potassium. Practising at the same time direct massage of the heart, he reanimated even hearts which had completely ceased to beat and in which heart massage and artificial respiration alone had proved ineffectual The use of adrenalin intravenously when the heart is arrested necessitates massage of the organ in order that the drug can reach the heart itself It will be understood that to enable concentrations of adrenalin sufficient to act as a stimulant to reach the heart, a vein near the organ must be selected for small doses, and the farther the vein is from the heart the larger must be the doses employed G W Crile, by injecting 20 and 10 mg respectively in two wounded persons who were in a state of syncope from stovaine spinal anæsthesia, and practising at the same time cardiac massage, obtained a permanent good result The effect of adrenalin seems to be the same whether it reaches the right or left cavities the myocardium or the pericardial sac The first attempts on the human subject, inspired by the experimental researches of Winter, aimed at reaching the left ventricle, but technical difficulties and theoretical ideas induced most surgeons to reach the right ventricle; it does not appear from published reports that it is of much importance which is selected As to its precise mode of action very little definite is known Against the old conception of Gottlieb who, from his experiments on frogs hearts, affirmed that adrenalin acted not on the muscular fibre but on the autonomous nerve centres of the heart, stands the other conception of Grandis that it is a drug of pre-eminently muscular action Coronary circulation does not seem necessary in order that the adrenalin may reach the nerve centres or the muscle-fibres on which it acts, in fact its action is just as rapid and intense when it is injected into cardiac cavities That is to say that the lymphatics of the heart diffuse the drug rapidly to its points of attack And since the injection is efficacious in either the right or left side of the heart, it must be inferred that adrenalin stimulation of one of the centres, or of a group of fibres, is sufficient for the first contractions Considering that the normal seat of stimulus formation is the Keith-Flack node between the opening of the superior vena cava and the right auricle, and that from this point the stimulus passes to the fibres of the myocardium, at first across the auricular-ventricular node of Aschoff-Tawara, a place near the opening of the coronary sinus in the right auricle, and then across the bundle of His, it is easy to understand the preference given by many to injection into the right side of the heart. The fact that any cardiac centre may, when required, produce the stimulus for cardiac activity, explains the success of injection into the right side of the heart The puncture should naturally avoid wounding the interventricular septum from which diverge the two branches of the bifurcation of the bundle of His, and the site of Kronecker's point It is interesting to note, moreover, that while in a general sense adrenalin is vaso-constrictor, it seems to be a vaso-dilator of the coronaries, by which it helps cardiac irrigation and returning function From the foregoing data it appears that the best place for making the puncture is the anterior surface of the right ventricle at some distance from the base and interventricular septum so as to avoid the anterior coronary vessels This point corresponds to the fourth left intercostal space at the upper margin of the fifth intercostal cartilage close to the sternal margin, and on injection artificial respiration is for the moment arrested in the expiratory phase to avoid wounding the lung The course of the needle should be at first perpendicular to the thoracic wall for 2 or 3 cm, then slightly inclined towards the median line when the resistance of the heart wall will be felt, with another 0 5 cm the right ventricle is reached as shown by aspiration into the syringe The injection of 1–3 c.cm. of 1 in 1000 solution should be made slowly and artificial respiration is resumed as soon as the needle is withdrawn The method has had its greatest successes (50 per cent) in cases of syncope from chloroform or ether or spinal anæsthesia, and certain cases of narcosis, artificial pneumothorax, and asphyxia In the field of pure medicine where organs are diseased the possibilities of success are very much diminished, but favourable results have been reported in the white asphyxia of the new-born and in the syncopal attacks of Addison's disease

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[1] Man 1926, pp 161, 181, 199

[1] Archivi di Biologia Genoa July–August, 1926

THE DISEASES OF AMAZONIA

This recently published volume[1] contains an account of the medical results of the seventh expedition to Amazonia which was made possible through the generosity of Dr Hamilton Rice The medical investigation described was for the most part carried out in the cities of Manaos and Para and their vicinity, and concerned the diseases met with in the course of certain geographical explorations The prevailing maladies in the regions traversed by the expedition were malaria, tropical splenomegaly, chronic ulcerations of the skin, leprosy, and syphilis Hookworm disease, beri-beri dysentery, typhoid and small-pox were also encountered Members of the expedition, which at times included some 30 persons, were evidently impressed with the robust health of the Maku Indians in spite of the primitive conditions of life in these native settlements There are no screened houses or mosquito nets, no hygienic measures as regards the disposal of excreta or the care or sterilisation of drinking water, there are no physicians, or drugs, or chemists' stores, and yet, generally speaking, the inhabitants living upon the river banks do not show evidence of either acute or chronic disease The Brazilian strain of *Leptospira icteroides* produced fatal infections in young dogs, while the sera of persons who had recently recovered from attacks of yellow fever gave positive Pfeiffer reactions when tested with strains from sources in Ecuador, Mexico, Peru, as well as with the Brazilian strain These results tended, therefore, to confirm those of Noguchi Tropical sloughing *phagedæna* was frequently encountered and a considerable amount of evidence obtained for connecting *Spirochæta schaudinni* with this disease Striking cases of oral leishmaniasis were encountered A subject of very considerable interest was the discovery of a disease which the authors designate "tropical splenomegaly" on the Upper Amazon and Rio Branco They are convinced that this is a disease *sui generis* and not a peculiar form of schistosomiasis It is certainly not kala-azar or any of the other well-known causes of splenomegaly, and appears to be confined to children who are otherwise in good health The remainder of the lengthy report is mainly concerned with animal pathology There are descriptions of trypanosomiasis in horses, in the indigenous fauna, and blastomycosis and parasitic infections of the wild animals of the Amazonian forest A new cestode, *Atriotænia parva*, of the Coati, *Nasua socialis*, is described The large entomological section is mainly of technical interest A list of birds, beasts, reptiles, and fishes seen on the Branco, Uraricuera, and Parima rivers terminates a report which supplies much useful information and redounds greatly to the credit of the Tropical Section of the Harvard Medical School.

EARLY ANATOMICAL STUDIES

A band of enthusiastic scholars is now doing for anatomy what the late Dr Nicaise did so well for surgery a few years ago Karl Sudhoff, at Leipzig, Charles Singer in England, H E. Sigerist in Zurich, and E Wickersheimer at Strasbourg are elucidating the history of mediæval anatomy by publishing the original texts which have long been known to those interested in the subject, but rather by repute than by actual study, for they have been hard to get and difficult to read The "Anatomy" of Mundinus is already familiar because it bridges the interval between the theoretical knowledge of the Alexandrian school, as transmitted through Salernum, and the "Anatomy" of Leonardo da Vinci and Vesalius Mundinus is honoured because he actually dissected the human body when it was both dangerous and difficult to get subjects Guido Vigevano is less well known, except to readers of Dr Singer's FitzPatrick Lectures of 1923–24 He lived a generation later than Mundinus, whose pupil he may have been Where Mundinus describes at length, Vigevano illustrates by drawings, and an idea is thus obtained of the anatomical technique of the period. Prof Wickersheimer has worked hand-in-hand with his publisher and the result[1] is worthy of all praise The Mundinus facsimile is from the 1478 edition printed at Pavia and reproduced from the copy in the Library of the British Museum Vigevano's Anatomy is represented by 16 plates, of which four are in colour, with a valuable apparatus criticus The work is issued in a limited edition as the third volume of a series of "Documents scientifiques du XVe siecle," printed by F Paillart, of Abbeville and published

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[1] Medical report of the Hamilton Rice Seventh Expedition to the Amazon in conjunction with the Department of Tropical Medicine of Harvard University, 1924–1925 (contributions from the Harvard Institute for Tropical Biology and Medicine, No IV) By Richard P Strong, Ph B, M D, S D, Professor of Tropical Medicine, Harvard University Medical School, George C Shattuck, Joseph C Becquaert, and Ralph E Wheeler Cambridge Harvard University Press 1926 Pp 313 20s

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[1] Anatomies de Mondino dei Luzzi et de Guido de Vigevano By Ernest Wickersheimer Paris *E. Droz 1926*

by E. Droz, in sheets contained in a portfolio, and it reflects the highest credit both on the good taste and energy of the publisher. We should like to see a similar issue of Mirfeld's "Breviarium Bartolomei" or of Arderne's "Practica Medica," both of which are crying out for print after centuries of seclusion in manuscript.

SUPERINFECTION OF MAN WITH SYPHILIS AND YAWS

FOLLOWING up a long-standing controversy, Dr. Takashi Hashimoto,[1] of the Japanese University at Mukden, Manchuria, has recently succeeded in superinfecting with syphilis 20 human subjects already suffering from proved syphilis in various stages. The inoculum was obtained from papules, condylomata, pustules and gummata from the subject himself or from others. It was injected into the skin on the flexor surface of the arm, and a control injection of the same material, sterilised by heating, made at the same time into the skin of the other arm. Both inoculations produced redness and local œdema, which was less marked and disappeared sooner on the control side. A positive infection was denoted by marked local adenitis and development of progressive redness and infiltration at the inoculation site, sometimes after a preliminary disappearance of the initial redness and swelling. Later the infiltration became nodular and ulcerated, the lesion then resembling an indurated chancre or a gumma. All the subjects were kept without treatment for four weeks or longer after the inoculation. In some a second or third inoculation was successful after the first or second had failed. In all but two of these inoculated superinfective lesions *Spirochæta pallida* was easily demonstrated. Although the patients were in various stages of syphilis, the superinfective lesions did not as a rule correspond in character with that stage of syphilis borne by the individual inoculated. Seven cases (including primary, secondary and tertiary stages of syphilis) were inoculated with material from syphilitic lesions in other patients; positive results were obtained when the material inoculated came from a lesion of an earlier stage of syphilis than that presented by the subject inoculated. In eight of the positive cases biopsy of the inoculated lesion was carried out, and the typical histological changes of syphilis were found in all of them; the *S. pallida* was found in six. The development of a syphilitic lesion in the skin at the site of recent trauma in a syphilitic has often been observed. The effect of trauma is excluded in Dr. Hashimoto's experiments by the failure of the control inoculations. Drs. G. R. Lacy, A. W. Sellards, and O. Scholl have carried out superinfection of human beings with yaws.[2] Four patients with this disease were treated with neosalvarsan and, after an interval of six months, inoculated with yaws. One developed a characteristic granuloma, the others showed atypical results. Treatment with neosalvarsan was repeated in two cases; in the other two the lesions disappeared spontaneously. After more than two years these four patients were found to be free from any clinical signs or symptoms of yaws, and their Wassermann reaction was negative. They were then reinoculated with yaws, and only one developed a typical granuloma—the same one who was found susceptible in the previous test. At the time of the first neosalvarsan treatment this patient had had yaws for only three months; the others had had it for much longer periods and showed definite resistance to reinfection with yaws. The conclusion is that active immunity develops late in the secondary stage of yaws. It is of considerable practical significance that patients with yaws treated in the advanced secondary stage have remained in excellent health, free from any sign of the disease and that they retained marked resistance to reinfection for more than two years, for this period is ample to permit bringing the disease under control even in heavily infected districts. In further experiments six volunteers were inoculated with yaws; five developed a typical granuloma at the site of inoculation. On reinoculation of the five patients four to six weeks after the first inoculation a lesion developed at the site of reinoculation which clinically was granulomatous, and spirochætes were found in it. The sixth patient of this group showed only an abortive reaction at the site of the first inoculation, but later a secondary eruption appeared. Lacy, Sellards, and Scholl noted that the primary efflorescence in yaws, as in syphilis, is a papule. In syphilis this papule leads to formation of a punched-out ulcer, whereas in yaws it becomes an oozing granuloma covered by an amber-like crust.

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[1] Vide Bruxelles Médical, Sept. 12th, 1926.

[2] The Philippine Journal of Science, 1926, xxx., No. 4.

THE RADCLIFFE INFIRMARY

THAT eminently shrewd and successful practitioner Dr. John Radcliffe, besides furnishing funds for the endowment of two travelling fellowships, giving £5000 for adding to the buildings of University College, Oxford, £40,000 for a library in the University, and £500 per annum to St. Bartholomew's Hospital, left his estates in Yorkshire, Buckinghamshire, Northamptonshire, and Surrey in trust to his executors "to be applied to such charitable purposes as they in their discretion shall think best." This duty they and their successors have carried out with admirable charity and discretion. Radcliffe died in November, 1714; the Radcliffe library was opened in 1749, and in the *London Chronicle* of July 15th, 1758, appeared the following notice:—

> "The Radcliffe Trustees have agreed to erect a County Hospital here (i.e. Oxford), and Mr. Rowney has generously made them a present of a piece of ground of five acres for that purpose."

The original grant had been made by the trustees on April 26th of the same year, the sum voted being £4000; the inceptors of the scheme were most probably the Earl of Litchfield, one of the trustees, and a country neighbour of his named Thomas Rowney. Another likely inceptor is Richard Frewin, Camden Professor of Ancient History and a practising physician in Oxford. Lord Litchfield will ever be held in remembrance by the ward in the infirmary named after him, by his endowment of a clinical professorship of medicine at the infirmary, and by the readership in anatomy. Frewin also left £2000 the interest of which was to be and still is paid to the infirmary physicians. As generally happens the initial cost of the buildings far exceeded the £4000 originally voted. The building was opened for the reception of patients in 1770, and between 1758, when the scheme started, and 1779, the total cost, including sundry furniture, was £12,791. Also as generally happens, the builder in 1764 announced that the building would be completed by midsummer and in 1767 that it would be finished by Michaelmas. Dr. Gibson in a recently published volume[1] gives a full account of the government of the infirmary which, though not technically part of the University, was and is in close touch with it. Perhaps the most interesting passages of the book to professional readers are the biographies of the medical and surgical staff, which are full of charming vignettes of social aspects of the eighteenth and early nineteenth century. Thus one of the physicians, William Thomson, D.M. 1786, was public Reader in Anatomy. In 1790 two murderers having been hanged in the morning, in the afternoon—

> "their bodies were conveyed in a cart to the Anatomy School at Christ Church, where Dr. Thomson next day gave a public lecture on the two bodies, to which the neighbouring faculty as well as those of the place were invited, together with the gentlemen of the University and many of the principal inhabitants."

In the notice of Dr. Robert Bourne, Dr. Gibson gives some interesting details of an interview which

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[1] The Radcliffe Infirmary. By Alexander George Gibson. Oxford University Press. London: Humphrey Milford. 1926. Pp. 316. 18s.

Bourne had with Howard, the prison reformer, who had expressed himself as displeased with the condition of the wards Later we find in the note on C L Parker, one of the surgeons (M R C S 1831), that on one evening—

> "I (Bishop Hobhouse) invited Mr Lewes Parker, a leading Oxford surgeon, who had lately shewn his skill in the treatment of the venerable President of Magdalen College, Dr Routh, who had been bitten by his gardener in a fit of madness"

The date of this tragedy is not given, but since Parker died in 1848 it is evident that his treatment must have been successful, for Dr Routh died in his hundredth year in 1855 The nursing staff, though not always as efficient as it should have been even in the eighteenth century, must have been cheered by the following incident which reflects gravely on the medical staff as well The *Oxford Journal*, of Dec 13th, 1777, reports—

> "On Monday last died in our Infirmary, Martha Jewell, a young woman admitted about five weeks ago, under Pretence of being troubled with a Dropsical Disorder, some hours before whose death, upon examining the Girl's Box under her bed, a female child was found wrapped up in a quilted petticoat, of which it appeared she had been privately delivered From Circumstances upon Examination before the Inquest it appeared that she had been delivered eleven days before her death"

This book should be read by every Oxford medical graduate, moreover, anybody who cares for the past history, not only of medicine, but also of varied aspects of social life, will find vivid pictures within Dr Gibson's carefully written pages

EXPERIMENTS IN PARABIOSIS

ARTIFICIAL union of two individual animals has been used from time to time in the study of various pathological problems, but only in the last few years has any attempt been made to employ this method in the elucidation of the various endocrine gland inter-relationships A considerable amount of work has now been done and the results are of interest, even though it would seem that this method of investigation is not likely to lead to any very striking results in problems of this sort The method of producing experimental parabiosis consists in uniting or grafting two animals of the same species, generally white rats, so that interchange can take place between the circulating fluids of the two organisms This is usually done either by musculo-cutaneous or peritoneo-cutaneous suture The condition is sometimes known as symbiotic grafting or, more simply, the animals joined may be referred to as a Siamese pair Several groups of workers have attacked the problems of endocrine inter-relationship by this means, the favourite experiment being by union of animals of different sex There has been general agreement as to the findings in such experiments, but a considerable difference of opinion as to their interpretation Changes occur almost universally in the sex and associated glands R Matsuyama, a Japanese investigator, was the first to study this aspect of parabiosis[1] Employing Siamese pairs of different sex he noted invariably that degenerative changes occurred in the sex glands of both male and female after a short time These changes were shortly followed by changes in the adrenals, pituitary and mammary glands He was inclined to consider that all changes followed a primary disturbance in the sex glands, the result of an antagonism between the hormones of the testicles and ovaries He regarded the condition as one of reciprocal auto-castration, and thought this view was confirmed by the fact that the changes in the other glands mentioned were the same as those found in castrated animals Although Matsuyama's findings have been confirmed by most subsequent workers, his conclusions have been the subject of considerable criticism, and none of his critics agrees with the view that the changes found are the result of antagonism between the hormones of the sex glands. The most popular view is that the changes result from a mutual intoxication between the internal metabolisms of the two organisms, and are not specifically related to the sex hormones The latest experimental work of G. Pighini and M de Paoli in Italy seems to confirm this[2] They have carried out a number of parabiotic experiments with male and female pairs, and they found a very marked reaction to parabiosis almost immediately after operation, a reaction which rather suggested an acute and mutual intoxication of the nervous system of the pair. This was apparently modified later by some degree of mutual immunisation, though the latter was insufficient to prevent emaciation and death Intoxication was less obvious in pairs operated on when very young, in the first two months of life, and in those born of the same litter, but it was always accentuated when the members of the pair were old or of different families Pighini and Paoli's anatomico-pathological findings corresponded with those of Matsuyama The post-mortem changes found in the glands of internal secretion were well marked There was a general tendency to degeneration and atrophy, first seen in the thymus, then in the sex glands, and later in the pituitary, thyroid, and adrenals The changes found varied in proportion to the toxic reaction to parabiosis These facts are certainly more readily explained on the hypothesis of a mutual intoxication of internal metabolisms than on a primary and specific antagonism between the sex hormones

WE greatly regret to inform our readers that Sir Ernest Hodder-Williams, our Chairman, was taken seriously ill last week At the time of going to press a position of slight improvement was being maintained

INDEX TO "THE LANCET,"
VOL II, 1926

THE Index and Title-page to Vol II, 1926, which was completed with the issue of Dec 25th, is now in preparation A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W C 2 Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —The Fellowship has arranged clinical demonstrations in Ophthalmology at the Royal Eye Hospital, Southwark, by Mr Letchworth (Jan 17th), Mr Griffith (Jan 19th), Mr MacCallan (Jan 20th), and Mr Dorrell (Jan 21st), they will be held at 3 P M On Jan 19th Mr Duncan Fitzwilliams will give a special demonstration in the wards at St Mary's Hospital at 2 P M All these demonstrations are open to members of the medical profession without fee A comprehensive course in venereal diseases will be given at the London Lock Hospital from Jan 31st to Feb 27th Also beginning on Jan 31st there will be a four weeks' course at the St John's Hospital for Diseases of the Skin, *consisting* of instruction in the out-patient department and bi-weekly lectures Classes in pathology can be arranged From Feb 7th to 19th an all-day course in Diseases of Children will be held, in which the *Paddington* Green Children's Hospital and the Victoria Hospital are participating The Royal Northern Hospital is *holding* a one week's course for general practitioners from Feb 21st, *no* fee will be charged The Fellowship can accommodate post-graduates with practical courses in anæsthetics and courses in obstetrics, and can arrange for clinical assistantships at the Samaritan Hospital for Women Syllabuses of the Special Courses and copies of the programme of the General Course and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

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[1] Frankfurter Zeitschrift fur Pathologie, vol xxv, 1921

[2] Medical Journal and Record, Sept 15th and Oct 6th, 1926

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCVI —THE SURGICAL TREATMENT OF OSTEO-ARTHRITIS OF THE HIP-JOINT

When arthritis due to the specific organisms of tuberculosis and syphilis is eliminated from the wide field of chronic joint disease the remaining conditions fall into two great clinical groups (1) rheumatoid arthritis; and (2) osteo-arthritis Osteo-arthritis is mainly, if not exclusively, an affection of late middle life, which shows a predilection for the larger joints In this group the characteristic changes so frequently involve the *hip-joint* that osteo-arthritis of this articulation has come to be recognised as a definite clinical entity. Osteo-arthritis of the hip is ordinarily a monarticular affection—at least in its earlier phases—although bilateral involvement is by no means rare, the so-called sound hip being attacked some years later The morbid anatomy of this disease presents a familiar picture, the outstanding changes being essentially hypertrophic in type In the early stages the joint capsule becomes thickened, contracted, and adherent to the femoral neck From the articular surfaces the smooth cartilaginous covering is shed and the exposed bone becomes condensed and eburnated The sclerosis extends deeply and thus defeats Nature's efforts to bring about ankylosis Hypertrophic changes are best seen at the joint margins where a fibro-osseous lip is slowly built up on the acetabular rim Occasionally the osteophytic outgrowths may take the stalactite form, and project into the joint from the socket floor Later the femoral head expands and becomes mushroom-like, overhanging the squat foreshortened neck. The deforming process is usually progressive, but may halt and remain stationary for an indefinite time

Ætiology

It has long been recognised that trauma, infection, or metabolic disturbance may be concerned in the initiation of the deforming joint changes, but in many cases the causal relation of such factors is pure hypothesis Recent clinical observations suggest that in many hip-joints which become the site of osteo-arthritis structural defects have existed from the time of birth Calot believes that every osteo-arthritic hip is primarily a congenital subluxation Such a view is not yet accepted, but the frequent incidence of osteo-arthritis in hip-joints which show the stigmata of congenital subluxation is now widely recognised

Clinical Manifestations

The classical title *Morbus coxæ senilis*, as applied to osteo-arthritis of the hip, is misleading, for the affection is more especially familiar in individuals in the prime of life Indeed, the joint lesion may arise in comparatively young adults

Early Signs —The most important early symptom is *pain* experienced in the region of the hip, and often referred towards the knee along the distribution of the sciatic and anterior crural nerves (The combination of sciatic and anterior crural pain is especially characteristic) At first the range of mobility in the joint is little impaired, but careful testing will usually demonstrate some restriction in the extremes of abduction internal rotation, and flexion The patient himself is often aware of such limitation before the objective signs are well marked At this stage the radiographic changes may be barely appreciable

Later Signs —In typical cases the intractable "sciatica" is accompanied by a progressively increasing fixation of the joint, which ultimately assumes a position of adduction and flexion. The limitation of movement now becomes obvious even to the uninitiated clinical observer, and in a radiogram the deformation of the joint surfaces is easily recognised For a considerable time a good deal of the restriction of mobility is due to muscular spasm, as an examination under an anæsthetic will often show. True ankylosis is unknown; if it occurred the patient would be spared much of the distressing pain After years of suffering the pain tends to diminish in severity and often a state of comparative comfort is attained, although marked lameness and crippling exist

Surgical Treatment

Under ideal conditions surgical interference should rarely be necessary in osteo-arthritis of the hip-joint These conditions imply the recognition of the affection in its earliest phases, and the elimination of the underlying primary cause, whether this be trauma, infection or some specific metabolic disturbance Meanwhile, the irritable joint would be rested for a definite period, with absolute relief from weight-bearing Under such a régime the deforming changes would be checked, and almost perfect function conserved.

But in the present state of our knowledge concerning the pathogenesis of this disease ideal preventive therapeutics continue to be somewhat disappointing In actual practice we are repeatedly called upon to deal with osteo-arthritis of the hip in its mature stage, after long-continued medicinal, vaccine, and physiotherapeutic treatment have failed to prevent or abolish pain and disablement

In patients of suitable age and physique the question of the relief to be afforded by well-conceived surgical attack then becomes of considerable importance The surgical procedures which have established themselves as effective may be described under four headings. (1) manipulation under anæsthesia; (2) excision of capsule and osteophytes; (3) arthrodesis; and (4) reconstructive excision of the femoral head.

Manipulation —In the earlier stages of osteo-arthritis it is often possible to stretch the infiltrated capsule and break down the adhesions between it and the head and neck by a timely manipulation under an anæsthetic This manœuvre is eminently suitable for active and robust individuals who are concerned especially with an increasing limitation of mobility which interferes with their enjoyment of exercise and sport In manipulating such hip-joints particular attention is paid to the restoration of the movements of abduction and rotation The stretching should be carried out steadily, and the force used must be well within the limits of danger No untoward reaction should follow, and the increase in mobility thus obtained should be assiduously conserved by post-manipulative exercises

In patients judiciously selected the increased range of mobility is usually accompanied by lessened discomfort, and the full benefits of manipulation can be expected to last for several years But if, during this time the disease becomes arrested manipulation then is a curative and not merely a palliative procedure. It should be unnecessary to emphasise the fact that forcible manipulation is useless and dangerous in hip-joints with advanced deformation, and is also to be avoided in elderly and frail subjects

Excision of Joint Capsule and Osteophytic Outgrowths (Capsulectomy) —Procedures which fall into this class are based on the operation of "cheilotomy" or removal of the osteophytic lip of the acetabulum which was introduced independently by Brackett, De Courcy Wheeler, and Sampson Handley some years ago At one time it was assumed that the newly formed acetabular lip acted as the chief obstacle to free mobility of the joint More extended operative experience has not confirmed this view so that cheilotomy in its limited sense is no longer regarded as an adequate operation. Combined, however, with a free *excision* of the infiltrated and adherent joint *capsule*, the operation has a definite place in the treatment of osteo-arthritis of the hip in the earlier stages Its rationale is founded on the well-established fact that the earlier symptoms—viz limitation of mobility and pain—are due to the shortening and adherence of the thickened joint capsule The operation represents the alternative to manipulation pure and simple where, for mechanical reasons, the latter procedure is unlikely to produce the desired mobilisation

Arthrodesis—When the deformation changes are well advanced, the more drastic procedure of surgical fixation of the affected joint must be considered Arthrodesis of the hip has now been practised long enough for its merits and drawbacks to be appreciated It is quite certain that the majority of patients with well-marked osteo-arthritis are contented when the joint is completely ankylosed in a useful position and thereby becomes painless The production of sound ankylosis is, however, by no means an easy matter It is necessary to remove freely the eburnated bone-layers from both femoral and acetabular surfaces, an operation which may take a long time, and is often a fairly severe test of the endurance of the patient For robust patients of middle age arthrodesis may be regarded as a safe operation and, on the whole, the end-results are satisfactory both to the patient and the surgeon For its performance the hip-joint may be approached (*a*) by the postero-lateral route, after detachment of the great trochanter —a method which the writer favours—or (*b*) from the front by the Smith-Petersen incision

After denudation of the joint surfaces to expose cancellous bone the hip is brought into a position of moderate abduction and 30 degrees flexion This is maintained in a long plaster-of-Paris spica Six weeks later a short spica is applied and the patient is allowed to use crutches or may attempt partial weight-bearing in a Thomas caliper splint When firm fixation has occurred—as judged by clinical and radiographic tests—the plaster or walking splint is discarded In a certain number of cases true bony ankylosis fails to develop, but a degree of fixation something less than the ideal is often not unsatisfactory A few patients complain of backache after arthrodesis of the hip-joint, a symptom which points to the undue strain now borne by the lumbar spine and sacro-iliac joints

Reconstructive Excision of the Femoral Head—For many patients, and particularly those who are past middle age, it is desirable to attempt to produce a painless hip-joint and at the same time to retain some degree of motion The latter adds greatly to the comfort of the patient, not only in walking, but also in sitting With this end in view, the reconstructive excision operation has been evolved The technical details of my own operation[1] follow the lines of the reconstructive operation described and practised by Royal Whitman, of New York, for ununited fractures of the femoral neck (1921) and later applied in cases of arthritis deformans (1924) The mushroomed femoral head is freely excised and after the stump of the neck has been rounded off and smoothed by filing, it is thrust deeply into the acetabulum with the hip abducted The trochanter, previously detached to allow free access to the joint, is now attached to the femur at a considerably lower level This reconstructs a longer femoral neck, and ensures to the hip-joint the mechanical advantage of a better abductor leverage

Traction is applied to the limb with the hip in the abducted position, the patient being nursed either on an abduction frame or a Pearson fracture bed Active movements are begun at the end of a fortnight, and six weeks after the time of the operation a walking caliper splint is fitted

This operation is gaining in popularity amongst surgeons who are called upon to deal with osteo-arthritis of the hip-joint, and in properly selected cases the results are most gratifying Pain is almost invariably abolished and often a limited though useful range of mobility persists If there is any possibility of osteo-arthritic changes developing in the opposite hip-joint, reconstructive excision must be preferred to arthrodesis in patients of all ages

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[1] Brit Med Jour , April 29th, 1922

Special Articles.

BISMUTH IN THE TREATMENT OF SYPHILIS

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For the past five years bismuth has been employed as a therapeutic agent for combating syphilis, and varying results have been obtained by different workers In what follows I have endeavoured to summarise the knowledge that has been collected and to indicate how far my experiences in a large venereal clinic confirm and extend the conclusions of other workers

History

The idea of treating syphilis with bismuth was first entertained, in 1889, by Balzer,[1] who unfortunately discarded it on account of the severe toxic reactions obtained when the ammonium citrate salt was injected into dogs Sauton and Robert,[2] in 1916, examined the action of the tartrobismuthate on spirillosis gallinarum and, finding that "the tartrobismuthate of sodium exercises a bactericidal action on *Spirochæta gallinarum*," thought it might be useful in the treatment of syphilis Sazerac and Levaditi,[3] in 1921, following these experiments on animals, were the first to state that "the tartrobismuthate of potassium and sodium has a decided curative effect on experimental syphilis in rabbits" In the following year, after tests on man, they[4] stated that "bismuth is comparable to the best antisyphilitic remedies It seems to work more effectively than mercury, although in certain cases less rapidly than the more active arsenical drug" This was confirmed by Fournier and Guénot,[5] who treated 200 cases with bismuth and found that *Spirochæta pallida* disappeared rapidly and that the Wassermann reaction became negative in primary and secondary cases, although it was almost unaltered in late syphilitic disease

Mode of Action

The method by which bismuth attacks *S pallida* was reported on by Levaditi and Nicolau[6] Apparently, bismuth salts do not kill in vitro, even when mixed with blood or blood-serum, but if fresh cellular extract is added the solution immediately becomes active and is able to destroy the spirochætes Thus, Levaditi and Nicolau found that soluble bismuth salts mixed with rabbit's liver extract gave rise to a substance which kills trypanosomes and spirilla in vitro and gave good results in syphilis The bismuth solution was activated by all tissues of the rabbit and by the liver of other animals They consider that liver extract transforms the bismuth into a bismo-protein—"bismoxyl"—which is a toxalbumin, a derivative of the cell proteins This is precipitated from bismuth liver extract on standing and is non-dialysable Bismoxyl prepared from brain extract is said to be 1000 times more powerful than that prepared from muscle Levaditi, Gérard, and Manin[7] think that minute traces of bismuth, acting as a catalytic agent, cause a chemical immunity They consider this immunity, which is prolonged, to be characteristic of bismuth and that no other antisyphilitic remedy is to be compared with it in this way Kolle[8] experimented with 26 rabbits inoculated with syphilis Those injected with insoluble bismuth did not develop chancres even after 109 days, but infection took place in those animals which received the easily absorbed soluble preparations He does not, however, consider this a proof that a deposit of insoluble bismuth in the tissues is a prophylactic against syphilis

Valuable research by Kolle and Evers[9] suggests that bismuth acts by inhibiting the reaction of the tissues rather than by inhibiting *S pallida* A bismuth suspension was injected subcutaneously into the ears of rabbits and four weeks later these were inoculated with *S pallida* No primary lesion or generalised syphilitic infection occurred until the bismuth deposit was removed two or three months later by amputating the rabbits ears When this was done, typical chancres developed and the usual train of syphilitic signs ensued without a fresh spirochætal inoculation Then they showed that in rabbits which had been inoculated with *S pallida*, but in which no chancre had developed owing to the presence of the depôt of bismuth, the popliteal lymph glands contained *S pallida* Thus, this organism had not been prevented by the bismuth from travelling into the tissues They made an emulsion from the popliteal lymphatic glands of rabbits in which the syphilitic infection had not developed owing to the presence of the bismuth deposit and demonstrated that other animals could be infected by inoculating them with this emulsion In one experiment infection took place and the chancre formed in a rabbit which had been inoculated with the lymphatic emulsion from an apparently immune rabbit (which had been inoculated with the lymphatic gland emulsion from another apparently immune rabbit which had not reacted to inoculation owing to the bismuth deposit)

Thus, the popliteal lymphatic glands of such apparently resistant rabbits are infectious, and it seems as though the bismuth in some way—possibly by some tissue reaction—merely *inhibits* the disease instead of having a direct curative action on the infection These experiments suggest that the therapeutic effect of bismuth may not be as satisfactory or as permanent as one might desire

Absorption and Elimination

The human system may be strongly impregnated with bismuth Mme A. L Draganesco [10] demonstrated that *sodium potassium* bismuth tartrate injected intramuscularly caused the deposition of bismuth in the large intestine, kidneys, spleen, salivary glands, brain, and liver (diminishing in amount in that order) and that the quantities of bismuth found in the different organs were not related to the amounts of blood in those organs A histochemical method for the detection of bismuth in the tissues was devised by Levaditi, Nicolau, Salgue, and Schoen,[11] by which 0 001 mg could be estimated in the tissues or body fluids Their experiments showed that the kidney, lung, and spleen held the largest amounts of bismuth, but that syphilitic lesions contained infinitesimal quantities of bismuth, there being no accumulation of the metal at the site of the destruction of the spirochætes An electrometric method was used by Christiansen Hevesy, and Lomholt [12] to determine the amount of bismuth in the various body tissues A mixture of the bismuth salt and its radio-active isotrope was injected into the animal The radio-activity of the organs was then measured electrometrically for the content of the radio-active isotrope, from which the amount of bismuth present was calculated The heart, lungs, and liver were found to contain only a small quantity of bismuth, while the kidneys held twice the amount found in the liver

Levaditi,[13] experimenting on rabbits with various bismuth compounds found that when administered intramuscularly they are absorbed according to their solubility, the insoluble preparations being absorbed slowly while the soluble compounds are assimilated rapidly and eliminated so quickly that kidney lesions are caused This toxic action on the kidneys was never found in animals even after very large doses, when the insoluble bismuth salts had been administered The insoluble bismuth salts and metallic bismuth are not absorbed unless they are previously rendered soluble by leucocytic proteolysis This gives rise to proteo-bismuth compounds which travel throughout the body and are eliminated chiefly through the kidney Phagocytosis occurring in the muscles helps to form a bismuth depôt there, which is greater in the case of the insoluble bismuth salts The depot supplies the body with relatively minute quantities of an organo-metallic salt, containing hidden bismuth, which is sufficient for the destruction of *S. pallida*

The routes of elimination are the same as for mercury. Bismuth has been demonstrated in the urine fæces, saliva, blood, bile, sweat, and cerebro-spinal fluid All authorities do not agree that bismuth reaches the cerebro-spinal fluid, but it has been found there by Schuller [14] within 96 hours of injection This observation is probably correct and would explain the good results obtained when bismuth is used in the treatment of syphilis of the nervous system

Christiansen Hevesy, and Lomholt [12] found that the amount of bismuth eliminated by the kidneys is double that excreted by the large intestine Elimination is more rapid after intravenous injections than after the intramuscular route, and more rapid with the soluble salts than with the insoluble preparations Gruhzit [15] found that after a single dose of bismuth salicylate the maximum elimination occurred in about five days Of the total amount of bismuth excreted, 77 to 92 per cent was found in the urine, and from 8 to 23 per cent in the fæces Fournier and Guénot [16] found bismuth in the urine 18 to 20 hours after the initial injection It may be detected in the urine for a considerable time afterwards

Interesting experiments on rabbits by Leonard and O'Brien,[17] who took into account the exact bismuth-content of the potassium bismuth tartrate used, showed that the tolerated dose of the insoluble potassium bismuth tartrate (150 mg per kg) is greater than that of the soluble sodium potassium bismuth tartrate (100 mg per kg) The rate of excretion of the soluble salt is also higher, falling off progressively before death, whereas the rate of excretion of the insoluble tartrate does not fall off, being fairly steady from day to day. With both drugs they found a lowered rate of excretion, and when the dose was increased the total excretion was lessened, corresponding with the extent of the damage to the kidney tubules

Some important experiments by Leonard [18] have proved that the dose of metallic bismuth which can be tolerated by rabbits when injected intramuscularly is 400 mg per kg , this is greatly in its favour compared with the insoluble potassium bismuth tartrate, the tolerated dose of which is only 150 mg per kg He also found that metallic bismuth has a range of nephrotoxicity extending from below 85 mg per kg. to 500 mg per kg , the lethal dose In comparison, the nephrotoxic range for the insoluble potassium bismuth tartrate is very small—only from 120 to 180 mg per kg , which indicates that it has a much sharper effect on the kidneys than has metallic bismuth

Groehl and Myers [19] claim that there is increased urinary excretion of arsenic in man after the use of bismuth thiosulphate Leonard [20] confirmed this and considered that the detoxicant action of thiosulphates upon heavy metals may be explained as a mobilisation of insoluble depôts which are producing local toxic lesions in the skin or mucous membranes The metal, when thus mobilised, may be more toxic in its acute effects on the kidney, but human therapeutic doses rarely reach a concentration dangerous to normal kidneys even when thus mobilised Sodium bismuth thiosulphate may therefore be a useful alternative or adjuvant treatment in certain cases of arsenical or mercurial intolerance where albuminuria is not a symptom

Choice of Preparation

Bismuth compounds may be divided into three large groups . (*a*) insoluble preparations suspended in water , (*b*) insoluble preparations suspended in oil · and (*c*) soluble preparations All these drugs are obtainable in great variety under trade names

Insoluble Preparations Suspended in Water —Those mostly in use are bismuth hydroxide, bismuth oxychloride, metallic bismuth, and sodium potassium bismuth tartrate These compounds are slightly painful when administered alone One preparation of bismuth oxychloride, however, contains chloretone, which acts as an analgesic and a preservative, whilst another preparation on the market is a very fine suspension of precipitated metallic bismuth in an isotonic glucose solution; hence these two preparations are practically painless. The actual bismuth-content of the first three preparations is high, but actual figures are not quoted.

Insoluble Preparations Suspended in Oil.—The chief are sodium potassium bismuth tartrate, metallic bismuth, bismuth oxide, iodobismuthate of quinine, and bismuth salicylate. These preparations are not so painful as the insoluble drugs in an aqueous solution and there is no local reaction at the site of injection. Their actual bismuth-content is not as high as that of the preparations in the first group.

Soluble Preparations.—The most important of these is the soluble sodium potassium bismuth tartrate, which is made by taking up the insoluble salt of the same name in just sufficient alkali to make a clear solution. This was chiefly used by Jeanselme, Chevallier, Pomaret, Blamontier, and Joannon.[21] The soluble salts, although they give results analogous to those obtained with the insoluble preparations, have passed into disfavour because of the intense local reaction and the severe pain which follow their injection, and on account of their greater toxicity. The bismuth-content is low.

The different preparations have been used by various observers for definite reasons. Thus, the sodium potassium bismuth tartrate was chosen originally by Sazerac and Levaditi[22] because of its low toxicity. At first it was used in an aqueous solution rendered alkaline,[23] but this was painful, and later it was superseded by a suspension of the salt in oil. After this they reported[21] that equally favourable results were obtained when metallic bismuth was used in an oily suspension. The first results of Fournier and Guénot[25] were obtained by administration of sodium potassium bismuth tartrate in an oily suspension, but later they[26] used metallic bismuth in a 10 per cent. isotonic suspension, which they recommended highly. Lomholt[27] found that although the oily compounds were almost painless, they were absorbed much more slowly than aqueous preparations. The latter were absorbed and eliminated very rapidly. He considers the most satisfactory preparation to be a suspension of bismuth hydroxide made up in 10 per cent. glycerine to ensure the stability of the suspension. All compounds of bismuth are probably reduced to metallic bismuth before "bismoxyl" is formed. Burke,[28] therefore, considers bismoxyl itself or metallic bismuth to be the most scientific form to use. He finds that the results obtained with metallic bismuth suspended in an isotonic glucose solution are more satisfactory than those with any other preparation on account of its painlessness and satisfactory rate of absorption.

In addition to the general preparations of bismuth mentioned above, a very large number of compounds have been used of which it is only possible to quote a few. Thus Barthelemy[29] found that the bismuth oxides, being heavy and coarsely granular, tend to produce abscesses. I have only seen one abscess in several thousand injections of bismuth compounds; in this particular case several ounces of pus were removed from a feeble old lady who had received 0·3 g. of bismuth oxychloride. The insoluble iodoquinate is weak in action on account of its low bismuth content and slow absorption but the tonic action of the quinine and iodine may be an advantage in some cases.

Observations in the St. Thomas's Hospital venereal department showed that the soluble tartrobismuthate caused the spirochætes to disappear sooner than did most of the preparations of bismuth tested, but this preparation was discarded because of the intense pain caused by its injection. Possibly soluble preparations which have lately been ousted by the comparatively painless insoluble compounds may return to favour owing to their more powerful spirochæticidal action if a painless method of administration can be found.

In general the soluble drugs appear to be absorbed and eliminated too rapidly, while the preparations in oil seem to be absorbed too slowly. Apparently the insoluble preparations in water are absorbed at a satisfactory rate. In France the sodium potassium bismuth tartrate and the iodobismuthate of quinine are especially popular. In America the tartrobismuthate, the salicylate, the hydroxide, and the iodoquinate are mostly in use, the tartrobismuthate appearing to be the most favoured.

A general consideration of all these facts, and my own experience, indicate that the most satisfactory preparation is an insoluble salt of bismuth, or metallic bismuth itself, suspended in an aqueous medium with as high a bismuth-content as possible.

Administration

Method.—Although Lacapère[30] has used colloidal bismuth intravenously, this method is contraindicated, as Sazerac and Levaditi have shown that bismuth preparations are ten times more toxic when injected intravenously than intramuscularly. Klauder[31] has demonstrated that inunctions are almost inactive. For both soluble and insoluble compounds the intramuscular route is mostly in vogue and is quoted by all authorities, but in the literature of the subject no special mention is made of the deep subcutaneous injection which in my opinion, is the best. Apart from the compound used, any intramuscular injection is inclined to cause stiffness, cramp of the muscles, and pain down the legs, all of which are obviated by a subcutaneous injection. This is an important point, as the chief advantage in using bismuth instead of mercury is on account of its painlessness. One clinic in England is known to the writer where bismuth oxychloride was given up on account of the pain caused by its use intramuscularly. The same preparation can be given deep subcutaneously without any inconvenience, except for the initial discomfort, which lasts over 30 seconds while the injection is being administered. My experience is that the bismuth hydroxide, the oxychloride, and metallic bismuth are equally effective and should preferably be administered in this way. By this method also the possibility of an inadvertent injection of a bismuth compound suspension into a vein is greatly lessened, this being much more likely to occur with an intramuscular injection than with a deep subcutaneous injection. Practitioners should be warned that if the injection is placed just beneath or too near the skin instead of deep to the subcutaneous fat, pain and induration are likely to follow. This is easily avoided by pinching up the skin and subcutaneous tissues between the thumb and forefinger and injecting the solution on to the fascia covering the muscles beneath. The needle should be inserted separately from the syringe so that, if a blood-vessel is tapped, the blood is seen to escape from the needle before the syringe is attached. When this happens the needle must be partly withdrawn and reinserted *in another position*. That the danger of injecting bismuth into the blood stream accidentally while *giving an intramuscular injection* is a very real one is illustrated by the fatal case reported by Dr. C. F. Chenoy.* An injection was inadvertently given into a vein of the gluteal region, and was followed almost immediately by thoracic pain and cramp in the legs together with perspiration and suffocation. The patient then became unconscious, with dyspnœa and paralysis of both legs, and died within two hours of the injection.

The site for an intramuscular injection has to be chosen very carefully in the upper and outer quadrant of the gluteal region, but a deep subcutaneous injection can be given at almost any spot on the buttock, a distinct advantage when a large series of injections are necessary. Colonel L. W. Harrison[32] is accustomed to inject both the bismuth compound and an arsenical preparation in this way through the same needle into different sites without making a second puncture of the skin

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* Indian Medical Gazette, May, 1926.

Dosage—It is the general practice to give injections of 0 2 to 0 3 g once or twice a week until signs of intolerance appear Generally a total of 2 to 4 g is given in a series of 10 to 12 injections

Therapeutic Results

The reports and findings of workers in various countries are very diverse, and many observers have been disappointed by the therapeutic action of bismuth since Fournier and Guénot[5] published their brilliant results in 1922

Effect on Wassermann Reaction—Sufficient time has not elapsed since the drug came into use to form any definite conclusions as to the curative value of bismuth and its permanent effect on the Wassermann reaction Fournier and Guénot[5] reported that the Wassermann reaction in primary cases with a positive reaction became negative after one course of bismuth in 100 per cent of cases Ahlswede and Busch,[33] after three years' experience with bismuth, consider that it has a lasting and powerful effect on the blood reaction Smith and Foster[34] state that the use of bismuth did not reduce the Wassermann reaction of either the blood or cerebro-spinal fluid in cases of syphilis of the nervous system, and that it had no marked influence on the Wassermann reaction in cases of tabes and general paresis although the symptoms were relieved McCafferty[35] reported a series of 25 Wassermann-fast cases in which the positive reaction became negative or was diminished in 64 per cent of the cases by one course of bismuth Marshall[36] found that 41 per cent of Wassermann-fast cases became negative, and the blood reaction was reduced in 18 per cent of cases Sidlick,[37] of Philadelphia, will not admit that Wassermann-fast cases become negative under bismuth The experience of Dr P A Clements[38] at St Thomas's Hospital venereal department is that, in cases of late syphilitic disease and in Wassermann-fast cases, bismuth does not cause a positive blood reaction to become negative

At St Thomas's Hospital venereal department[39] the Wassermann reaction results from a series of acute syphilitic cases which were treated with arsenobenzol and mercury were compared with those from a similar series of cases treated with arsenobenzol and bismuth The cases included in both series were primary lesions with a negative or a positive Wassermann reaction, and secondary cases with a roseolar or a papular rash, which had received not less than 5 g of "914" during the first course of injections, plus not less than 8 gr of mercury, or 2 g (average 3 6 g) of bismuth The results were judged by the Wassermann reaction of the blood-serum obtained within two months of the completion of the course The percentages were calculated from a series of 240 cases treated with mercury and arsenobenzol, and 185 cases treated with bismuth and arsenobenzol, all of which satisfied the above conditions The percentage of completely negative Wassermann results was 81 7 in the mercury series against 77 3 in the bismuth series The incompletely negative (±) Wassermann reactions (indicating that the continuation of treatment is essential) was 6 7 per cent in the mercury series, against the high percentage of 14 1 in the bismuth series Thus, it is observed that, at the end of the first course, the percentage of completely negative Wassermann reactions is higher in cases treated with mercury, while borderline results (incompletely negative) were commoner in the bismuth series

Disappearance of S pallida—At St Thomas's Hospital venereal department it has been found that spirochætes disappear from the early syphilitic lesions much more slowly after bismuth than after arsenical preparations—viz , in five or six days The organism can generally be found after the second injection, but not after the third (although this occasionally occurs), when a dose of 0 3 g is given three times in a week Gruhzit,[14] of Detroit on the other hand, obtained absolute cures in all his infected rabbits He found that bismuth salicylate in doses of 5 mg per kg. killed *S pallida* in 48 hours

Clinical Effect on Primary and Secondary Lesions—These disappear under bismuth alone, perhaps quicker than with mercury, but not so quickly as with arsenobenzol The writer has noticed that secondary lesions of the mouth and tongue respond particularly well to bismuth Chenoy[40] confirms this, as he obtained the best results in cases of mucous patches of the mouth, cheek, or palate In treating 200 cases of secondary syphilis he found that the lesions generally cleared up after the administration of 1 g of metallic bismuth. Dennie[41] says that in his experience bismuth has been unsuccessful in controlling cases of recurrent early syphilis, cutaneous secondary lesions having followed soon after an initial course of treatment

That bismuth has a definite spirochæticidal action is supported clinically by the frequent occurrence of the Jarisch-Herxheimer reaction after its use Ehlers and Sloth[42] noted 20 per cent of Herxheimer reactions in cases of secondary syphilis treated with bismuth at Copenhagen, and other cases have been reported by Jeanselme and Blamontier [43]

Tertiary Lesions—In the later stages of syphilis symptoms often intractable to arsenic and mercury have been relieved by a comparatively few injections of bismuth I have repeatedly noticed that cases of gummatous ulceration and of tibial periostitis, which have relapsed or refused to heal under arsenic or mercury, have responded favourably to bismuth Parnell,[44] at Haslar, found that bismuth has "especially beneficial effects upon cases of glossitis and chronic leukoplakia of the mouth, and can be given safely to cases of arsenical jaundice " Chenoy[40] remarks that, in tertiary lesions of the mouth and tongue, the results were better with bismuth than those of similar cases treated with arsenic In my experience bismuth seems particularly effective in tertiary cases with lesions of or in the mouth Perhaps this is because they are bathed in the patient's bismuth-excreting saliva A pregnant woman, who had been on milk and soft diet for a fortnight on account of the pain from a large gumma in the right side of the tongue and severe ulceration along the right margin and tip of the tongue, was able to eat normal food, and the pain had gone 24 hours after a deep subcutaneous injection of 0 3 g of bismuth oxychloride No other drugs or form of treatment was given, and no previous antisyphilitic treatment had been administered Three days after the injection the ulceration was only just perceptible, and the tongue had become normal in size

Neurosyphilis—Bismuth appears to be more valuable than mercury in the amelioration of tabetic symptoms Lightning pains, gastric crises, and incontinence of urine are relieved more rapidly with injections of bismuth than with mercury, and sometimes the relief secured is remarkable Marie and Fourcade,[45] in Paris, produced a Herxheimer reaction with bismuth, provoking lightning pains in a tabetic case The results in cases of general paralysis are very poor Smith and Foster[34] found that the symptoms of cerebro-spinal syphilis are relieved One case of syphilitic meningitis recovered rapidly and there had been no return of symptoms 11 months later They consider bismuth of value especially in relieving the subjective symptoms of syphilis of the nervous system, while in tabes and general paralysis it gives as good results as does any other form of treatment

Advanced Organic Disease—Musser[46] concludes that bismuth in certain selected cases of advanced organic disease has a greater value than salvarsan, especially in cases of cardiovascular syphilis and nephritis

Syphilis in Conjunction with Pulmonary Tuberculosis In collaboration with Dr G T Hebert of the tuberculosis department of St Thomas's Hospital, the writer has found that arsenobenzol, even when small doses are given intramuscularly, is inimical to patients suffering from pulmonary tuberculosis The disease in the lungs seems to progress rapidly if arsenobenzol is administered, but bismuth seems to have no deleterious effects and is not contra-indicated in these cases

Poor Results —Cases occur in which bismuth seems to have little or no therapeutic action Seven cases of recurrence after bismuth are reported by Simon and Bralez,[47] who consider that at least 2 g of bismuth should be given to prevent relapse, although in one of their cases the disease recurred within a month of receiving 9 5 g of bismuth Lortat-Jacob reported a case of secondary syphilis which developed a mucous plaque full of *S pallida* after receiving seven injections of bismuth, totalling 1 12 g of metallic bismuth, but recovered with mercury inunctions Burke's[28] opinion is that mercury has become obsolete in the treatment of syphilis, and that bismuth falls little short of arsenobenzol in its effect upon superficial and visceral manifestations and upon the serological reactions of the blood and cerebro-spinal fluid. Milian[48] expresses the relative therapeutic values of the antisyphilitic drugs as follows arsenobenzol 10, bismuth 7, and mercury 4 Personally I have no evidence for such a high curative figure for bismuth and consider bismuth and mercury more nearly equal, mercury possibly being as effective as bismuth—if not more effective when skilfully administered Bismuth, however, though possibly not so powerful as mercury, is more convenient to use

(In the concluding portion of this article, which will appear later, Dr Anwyl-Davies deals with intolerance to bismuth, indications for its preference to mercury, and concludes with references to current literature)

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

Unrest among Poor-law Authorities

THERE are many signs of unrest among the parish councils as the result of Lord Constable's decision that emergency relief paid to miners' dependents during the strike was illegal In one area the parish council has received a number of refusals to pay the rate involved, and resolutions have been passed suggesting that the Government should refund to the parish councils the amounts illegally incurred on the central initiative—all this notwithstanding the announcement that the position will be dealt with by legislation In some areas the parish rates have risen to a point where recovery may be difficult or impossible, and the stoppage has undoubtedly raised some very difficult questions of local government finance The parallel conditions in England are equally difficult, although the law is different in some essential points The early part of the Parliamentary session promises some interesting discussions

Scottish Hospitals and the Coal Stoppage

It is now possible to see to what extent the coal stoppage affected two large hospitals—namely, the Edinburgh and Glasgow Royal Infirmaries In Edinburgh the miners' contributions showed a falling away to the extent of £4655 In Glasgow the loss amounted to about £6000 and the bill for coal showed a rise of some £5000, thus the stoppage directly cost Glasgow Royal Infirmary £11,000, and doubtless other hospitals suffered in proportion In both cities, however, the general financial position of the Royal Infirmaries is satisfactory In Edinburgh the League of Subscribers, instituted in 1919, has been very successful in maintaining or even in increasing the contributions The patients treated in 1926 numbered 17,024, as against 15,755 in 1925 The daily average remained as before, 905, for the average stay in hospital fell from 20 6 days to 19 03 The cost per occupied bed was £143 10*s* 9*d*, an increase of £2 7*s* 6*d* on the figure for 1925

Edinburgh Royal Infirmary and the Simpson Memorial

It is announced that the Royal Maternity and Simpson Memorial Hospital is to be amalgamated with the Royal Infirmary For many years the need for a larger maternity hospital has been discussed, and at first it was proposed that an appeal should be made for a new or extended maternity hospital to work as an independent body It was all along felt that the great name of Simpson deserved to be perpetuated in this way, and I have no doubt that in the arrangements now in prospect that name will not be forgotten But the advantages of functional unity were admitted on every hand from the beginning, and when it was clear that the maternity and gynæcological services of the infirmary must be improved, some working arrangement had to be made if the medical school was not to suffer and if the functions of two rival organisations were not to overlap Under the able and generous chairmanship of Dr Goodall Nasmyth, the Simpson Memorial has undergone many improvements, the new Ballantyne Memorial Antenatal Department is acknowledged to be a model of its kind and worthy of the life-time of propaganda which its name commemorates But circumstances have arisen to make the amalgamation of the Royal Infirmary and the Simpson Memorial both desirable and practical It is likely that a portion of the Watson's College site will be used for the erection of a modern gynæcological and maternity hospital, this whole department will then be an integral part of the Edinburgh Medical School, and the arrangement is certain to give general satisfaction

IRELAND

(FROM OUR OWN CORRESPONDENT)

Statistics of the Irish Free State

THE most notable fact in the 1925 report of the Registrar-General is the high figure for emigration—30,302, compared with 19,077 for 1924 As usual the great majority—26,546—of the emigrants went to the United States of America Marriages numbered 13,820, which is equivalent to a rate of 4 63 per 1000 of the estimated population and is 1002 below the figure for 1924 Births numbered 62,069 (31,818 boys, 30,251 girls), which is equivalent to 20 8 per 1000, the rate in Northern Ireland was 22, in England and Wales 18 3, and in Scotland 21 3 The total number of deaths was 43 650, and the death-rate (14 2 per 1000) was 0 41 below that of 1924 and 1 30 below the average for ten years The death-rates in other countries were Northern Ireland, 15 74, England and Wales, 12 16, and Scotland, 13 39 The death-rate from all forms of tuberculous disease was 1 57 per 1000, as compared with Northern Ireland, 1 67, England and Wales, 1 04, and Scotland, 1 10 During the past two years the mortality in the Free State from this cause has been rising In 1925 the death-rate was highest in Dublin Borough (2 31), Cork City (2 22), and Tipperary S R (2 02) The lowest rates were in Roscommon (0 78), Longford (1 13), Mayo and Sligo (1 16) Deaths from cancer numbered 2801, a decrease of 12 as compared with 1924 There was a distinctly upward tendency in the mortality from cancer in the years 1923 and 1924 The number for 1923 gave an increase of 8 per cent on 1922, and 1924 gave a further increase of 6 per cent on 1923 The mortality from cancer in An Saorstat during the five years 1921–25 is given as 0 9 per 1000 A total of 1171 deaths were registered as due to influenza, compared with 2073 in 1924 Of deaths from all causes 14 6 per cent occurred among children under 5 years 45 7 per cent amongst persons aged 65 or over, and 37 3 per cent in persons of 70 or over The mortality amongst infants under one year was 68 per 1000 births, compared with an average of 77 for the ten years 1915–24 In Northern Ireland the infant mortality was 86 per 1000 births, in England and Wales, 75; and in Scotland, 91.

Enforcement of Vaccination

The Department of Local Government and Public Health has been for some time impressing on the health authorities of the county and town of Wexford the necessity for enforcing the Vaccination Acts, but little has so far been done. According to recent reports there are 2653 vaccination defaulters in the town, or nearly one-quarter of the total population. In the county there are some six or seven thousand defaulters. Despairing of obtaining any result by persuasion, the Department has at length taken steps to compel the Wexford Corporation to discharge its responsibilities. A conditional order, directed to the mayor and the other members of the corporation, has been granted by the High Court. The order directs the mayor and the other members to enforce the Vaccination Acts in this district, and warns them that unless they do so within ten days of the service of the order, application will be made to charge them with the costs of the court proceedings. As regards the county health authority the Minister has not as yet taken any drastic steps. He has, however, directed a letter to be sent to the effect that neglect of vaccination shows a very lamentable want of public spirit and poor citizenship on the part of the Board of Health and Public Assistance. He is not prepared to acquiesce in the disregard of the provision of the Vaccination Acts. A serious outbreak of small-pox at present exists in a neighbouring country, which renders suitable precautions all the more essential.

BERLIN

(FROM OUR OWN CORRESPONDENT.)

The Campaign against Practice by the Unqualified

BEFORE a combined meeting of the Berlin Arzte-Bund and the Society of Berlin Lawyers Dr Ebermayer, retired director of public prosecutions in the Supreme Court of Leipzig, recently read a paper on the duty of the Government to protect the public against the consequences of unqualified practice and on the legislation at present in force. He stated that since the Trades Act of 1869 unqualified practice has spread in a way never anticipated by the authors of the Act, amongst whom was the late Prof Virchow, then a member of the Reichstag. Since the passage of the Act anyone has been allowed to attend patients provided he does not use the title of *Arzt* (doctor) or a similar one. Dr Ebermayer described as quacks both the man who attends patients without being duly qualified, and the man who advertises secret remedies. The number of unqualified practitioners rose in Berlin from 28 in 1879 to 1349 in 1903 and by 1925 there were 5648 unqualified doctors in Prussia alone. The causes of the increase are (1) the bad financial condition of the population, which induces patients to consult unqualified persons because they believe their advice to be *cheaper*; and (2) the prevalence of mysticism and the systematic campaign against so-called official medicine carried on by the associations of quacks. Several German Acts however, contain provisions against unqualified practice; under the Workmen's Insurance Act and the Vaccination Act for instance, medical practitioners are only recognised as such if they have a qualification. Unqualified persons are also liable to prosecution under the Trades Act, the Unfair Competition Act and the Criminal Code. The provision of the Trades Act that only a qualified medical man may call himself *Arzt* is often violated by unqualified persons who use titles with a similar sound. The Unfair Competition Act may be brought into force against anybody who in advertising a secret medicine alleges that it cures ailments in a quicker and surer manner than other remedies. The Criminal Act may apply to an unqualified person who has caused death or bodily injury by neglect, but prosecution on this charge seldom leads to punishment as the prosecutor must prove that the defendant has failed to use the care which could be expected of him in view of his training. Dr Ebermayer concluded that as the present legislation is unsuitable, unqualified practice ought to be made a criminal offence by a new Act, which should prohibit the attendance of unqualified persons on any patients, except those requiring first-aid. Such a prohibition, he considers would be neither ineffective nor superfluous, as was alleged in the debates on the Bill of 1869. If complete prohibition has no chance of being enacted by the present Parliament, the absolute freedom to practise which is now enjoyed by quacks must at least be restricted.

The Arrangement of Medical Study.

The regulations of 1924 concerning the State medical examination have proved satisfactory neither to medical students nor to examining boards. At the time when the new regulations came into force, the financial condition of Germany was such that the medical curriculum could not be extended on account of expense, although the regulations included more branches of medicine than were formerly recognised. The Home Office has been considering revision of medical education and the State examination, and the medical faculties have been invited to make proposals. In order to allow students and the profession in general to give their opinions the publishers of the *Deutsche Medizinische Wochenschrift* have opened a competition for an article on the best arrangement of medical studies. Those entitled to take part in the contest are the subscribers to the journal (other than members of medical faculties and of examining boards), and medical students who have already completed the ninth or tenth term of their curriculum. The publishers reserve the right to publish the prize essay and to send others to the Home Office for consideration.

Deafness in School-children

Prof Gustav Bruhl, aurist to the Berlin School Board recently stated that 72,000 children in Berlin schools suffer from affections of the ear, and that 7250 of them are hard of hearing, 10 per cent of these being almost deaf. The city has only six special schools where 410 deaf children are educated—an accommodation obviously far too small. It seems practically impossible to have all the hundreds of thousands of Berlin school-children examined by aurists for not even the regulation that every child who is hard of hearing shall be shown to the municipal aurist has so far been complied with, many of the municipal schools not having sent a single child for examination. It is true that children often conceal their disability by following with their eyes the lip-movements of their teachers. Prof Brühl is of opinion that every child who makes no progress in his work should be examined by an aurist since deafness is so often the cause of inefficiency. Half the deaf children suffer from double chronic otorrhœa. Twenty per cent of them might be cured by adequate treatment, but this is often hindered by the indolence of the parents.

Hospital Accommodation in Berlin

The Berlin municipal hospitals have a total of 13 875 beds, 400 of which have been added during the past year. By far the biggest is the Virchow Hospital with 2517 beds; then come the Neukölln with 1086, the Friedrichshain with 1065 and the West End with 1030 beds. Of social hospitals there is the Children's Hospital with 440 beds an infants' hospital in Weissensee with 80 beds a maternity hospital with 270 beds and sanatoria for tuberculous patients in Charlottenburg Sommerfeld, and Hasenhaise with 350 beds each. With the construction of new wards and the purchase of private hospitals the number of beds in the municipal hospitals will next year be about 15 000. Besides the municipal hospitals there is the Charite Hospital, belonging to the State, and some university clinics having together 2000 beds.

There are infirmaries, with 700 beds, belonging to sick-clubs, and a number of private hospitals with a total of 5300 beds for the most part belonging to religious bodies Altogether 21,400 beds are available for the four million inhabitants of Berlin—i e , 5 35 beds for every 1000 inhabitants For incurable cases there are 7000 beds, and accommodation for 11,000 insane persons is at the disposal of the municipal authorities

Success of the Dusseldorf Exhibition

The great exhibition of hygiene, called *Gesolei*, which was held at Dusseldorf last year, was visited by 7,500,000 visitors and closed without a deficit This result was principally due to the excellent organisation of the exhibition for which Prof A Schlossmann, the well-known pædiatrist, was largely responsible, being chairman of the committee

UNITED STATES OF AMERICA

(FROM AN OCCASIONAL CORRESPONDENT)

Health of Undergraduates

THE American Student Health Association, which is composed of physicians attached to the leading colleges and universities, devoted its recent meeting largely to the subject of periodic medical examinations Comparatively few universities have felt justified in making the large outlay of labour and money involved in a thorough examination of all students each year Such examinations, however, are conducted at Yale, Cornell, the College of the City of New York, and Antioch College, whilst in two of the larger universities—Columbia and Minnesota—the examinations have been made on medical students only At Minnesota a questionnaire at the end of the year showed that more than half of the students had recognised benefit from the examination, whether by the discovery of physical defects previously unknown to them, the recognition of the importance of defects previously disregarded, or the removal of unnecessary worry about some impairment real or imaginary Eighty-eight per cent of the senior medical students approved of the examinations The chief criticisms offered were that the examination should be more comprehensive and that stereoscopic radiographs of the chest ought to be included in the routine Dr H. S. Diehl, director of the student health service in this university, said that he had come to regard the outlay necessary for these examinations as fully justified

In a presidential address Dr Thomas A. Storey stated that since September, 1906, the College of the City of New York has given required health examinations to more than 35,000 students every half-year during their undergraduate enrolment This should have made a definite impression on the citizenry of New York, for many leading citizens are now interested in preventive medicine and in being thoroughly examined by their physicians both as a preventive measure and when they are ill The college graduate, however, has not always found it easy to secure the services of doctors who exercise the thoroughness so desirable from the educational as well as the preventive viewpoint Doctors have examined with stethoscopes applied to the clothing or have discountenanced the idea of an examination at all when the applicant is not consciously in ill-health Dr Storey communicated with the deans of all the Class A medical schools in the country in an attempt to learn how reliable physicians might be recognised The deans agreed that such recognition is extremely difficult A few declined to answer the question, but many suggestions were made as to how a college graduate may safely select his health examiner The physician should be a graduate of a Class A medical school, he should have been an intern in a hospital approved by the American Medical Association, and he should be a member of the State Medical Association The medical directory may be consulted, but specialists should be avoided The superintendent of the local hospital may be consulted, or the secretary of the county medical society, or the local health officer Perhaps the best suggestion is that the students should be so educated in thoroughness and in the scientific method that they will be able to recognise slipshod methods at sight

Function of the Suprarenal Cortex

The eighty-third annual meeting of the American Association for the Advancement of Science has just been held in Philadelphia Prof W W Swingle, of the University of Iowa, gave an account of his research into the functional significance of the suprarenal cortex Working with cats he was able to show that if the medulla of one adrenal gland is curetted and the second gland is totally extirpated at a later operation, the animals survive, whereas, if both glands are totally extirpated the animals die in 40 to 60 hours, surviving only exceptionally for 100 hours Two hundred animals with cortical remnants survived for as long as 6–8 months, after which they were sacrificed in order to prove by autopsy that no medullary tissue remained Accessory glands were found in only five cases, and in four of these there was no medulla in the accessory gland Bilateral total removal results in a rapid rise of phosphorus in the serum , this is not seen as long as any cortex remains The protein-urea and non-protein nitrogen are also increased, and respiration becomes considerably quicker and deeper The animal passes rapidly into a lethargic condition and thence to coma Coincidently with these changes, the tension of carbon dioxide drops, and the pH concentration, though it is held constant for some time by the increased respiration, eventually falls In the absence of suprarenal cortex the kidney apparently fails to remove the acid products of metabolism. No constant pathological lesions were found in the kidneys at autopsy

The Services.

ROYAL ARMY MEDICAL CORPS

Maj -Gen O L Robinson, K H P , late R A M C , having attained the age-limit for retirement, retires on ret pay

Lt -Col L N Lloyd, from R A M C , to be Col

Capt J E Foley retires, receiving a gratuity

ARMY DENTAL CORPS

Temp Lt I A. Barlow, Dental Surg , Gen List, to be Lt.

SUPPLEMENTARY RESERVE OF OFFICERS

Capt W S Dawson resigns his commn , and retains the rank of Capt

TERRITORIAL ARMY

Majs (Prov) C H Carlton and H H Woollard are confirmed in their rank

Capt H Shield to be Maj

ROYAL AIR FORCE

M. D Rawkins and H Penman are granted short service commns as flying officers

INDIAN MEDICAL SERVICE

Lt -Cols A. Spitteler and J Norman Walker to be Bt.-Cols

Lt T A Doran to be Capt

The following temporary commissions have been granted : Amarnath Bajaj, Rangi Lal, and Kazi Tasadduq Hosain Khan to be Temp Lts

The King has approved the relinquishment of their temporary commissions by Lts Ragade Sanjiva Rao and Ponathil Balakrishna Kurup

PRINCESS VICTORIA AT IVER COTTAGE HOSPITAL.—Princess Victoria, who now resides at Iver, last week opened the enlarged and improved Iver, Denham, and Langley Cottage Hospital, which serves a comparatively extensive rural district on the south Buckinghamshire border near Uxbridge

Correspondence.

"Audi alteram partem "

TREATMENT OF TUBERCULOSIS BY MR SPAHLINGER'S METHODS

To the Editor of The Lancet

Sir,—I am exceedingly grateful to Dr Leonard Williams for his letter in your last issue, calling my attention to the case of E A, who, he says, should have been included among the test cases given by Dr Arthur Latham to Mr Spahlinger in 1913–14 I may say at once that the case was not included because (1) he had no tuberculosis of the lung, and (2) he never received any injections of Mr Spahlinger's preparation in St George's Hospital

As Dr Williams, on no justifiable grounds, criticises unkindly the notes of the hospital, I ask your special permission, Sir, to publish this case in full, word for word, with the queries and underlinings just as it appears in the Medical Register of the Hospital

Medical Register of St George's Hospital, No 412–1914

Edward Allen Age 31 Occupation—porter

Under the care of Dr Latham Ward—William King

Bed No 16 Admitted 23rd March Discharged *6th April*

Diagnosis —? T B Lung No evidence

Patient complains of losing weight.

H P I *A fortnight before* Xmas patient had influenza He remained at home for eleven days and then returned to work After returning for four or five days he had a relapse of the influenza This resolved itself into acute rheumatism Patient was confined to bed for six or eight weeks He again returned to work and after a week had another attack of rheumatism Dr Spahlinger gave him an injection which apparently made him worse for a few days He then went to the French Hospital and gradually became better Patient had a second injection last Saturday

Patient has no cough and he does not spit up Occasionally spits up a little black phlegm night and morning in Winter months Does not sweat at night Never brought up blood Up to a fortnight ago patient was losing weight But since then is putting on weight Feels as if he is getting stronger Appetite *good* No headaches

P M H —Double pneumonia twelve years ago No history of Σ

F H —Nil *abnormal detected*

Habits —Non-drinker Smoker

C O A —Patient is a fairly well nourished man about 11 *stone in weight* Some pallor of face

Tongue —Clean and moist

Teeth —Satisfactory

Fauces—Healthy

Chest —Moves well and equally There appears to be some impairment of resonance *over* right apex behind On auscultation a few creps can be heard on deep inspiration It is doubtful whether these are tuberculous

Heart —No gross lesion discoverable

Abdomen —Nil abnormal detected

Knee jerks —Present

Eyes —React to light and accommodation.

Urine (see *notes on* chart)

23rd Mar Patient put to bed, Temperature 99 Pulse 108

26th Mar Patient does not expectorate or *cough at all* —so sputum not searched

27th Mar Opsonic reaction done q v

(Opsonic index to T B

1	*After night's rest*	0 85
2	After active exercise	0 77
3	After rest in bed	0 83

Mar 27/14 Signed E L Hunt)

Patient has been skied and (the usual) mottling suggestive of tuberculous (?) disease reported upon No crepitations now heard at apex behind 30th Mar. Patient feels quite well, gets up and about

1st April Dr Inman of the Brompton Hospital did his complement-fixation test, but he reports that the reaction was negative

4th April Injection of old tuberculin for diagnosis—no reaction

6th April Left Hospital without evidence of tubercle at all

I enclose a copy of the temperature chart The principal information from it is —

Urine Acid Sp Gr 1020 No albumin or sugar. Deposit of normal phosphates

Weight —23 Mar 11 st 4¾ lbs
30 Mar 11 st 6 lbs
6 Apr 11 st 9 lbs

After the evening of admission temperature was 98 6° F. on two occasions, otherwise *normal or below* Pulse extremes 56 and 96, usually 76 Respirations average 22

Treatment sheet shows —Diet—ordinary Haust Sennæ Co Oz ij o n, Ol Morrh C Malt drms ij t d s, Haust Ferri Arsenicalis oz j t d s p c

You will see, Sir, that Dr Latham used every then known examination (in the absence of sputum) *to see* if this man had any sign whatever of tuberculosis, this naturally being the first step in selecting a patient *on which to test a cure for that disease* The results are overwhelmingly negative Perhaps I should point out that radiography of the chest was at this time in its infancy, and the extent of normal mottling in the chest was not realised, so that no great importance was attached by cautious clinicians like Dr Latham to anything but gross lesions Unfortunately, the plates are destroyed after a certain time, so that I am not able to inspect the original

According to the man's story, as taken down by Dr Latham's clinical clerk on March 23rd, 1914, he had had *two* injections of Mr Spahlinger's preparations before entering St George's Hospital He certainly had *none in St George's* *Dr Williams has* pointed out to you in his letter how " irrelevant to the issue " is a case that had had three injections No doubt the patient's memory of the events in January to March, 1914, was better on March 23rd, 1914, than it is now Indeed, the tricks that memory may play us is well exemplified in his recollection of having weighed 8 st 1 lb, whereas he actually weighed 11 st 4¾ lb at the beginning of his fortnight in St George's And again his memory of Mr Spahlinger's treatment " for several weeks, receiving an injection on the average of one every two days " is sadly awry

I am hoping that Dr Williams will be kind enough to publish the original notes of the French Hospital' on which he was able to make a certain diagnosis of tuberculosis *before proceeding to treat the disease*

I have the permission of the Medical Registrar of St George's to show these notes, and those of the *Spahlinger series, to Dr* Williams if he could find time to meet me at the hospital If he knows of any other such cases that I have not included—and I may well have missed one or two in searching among some 2000 odd for 10 or 12—I will willingly look them up and publish them

It may be hoped for the sake of "one of Mr Spahlinger's most striking successes" that some convincing proof is forthcoming that this man ever suffered with pulmonary tuberculosis

I am, Sir, yours faithfully,
Thomas Nelson

Brook street, Grosvenor-square, W, Jan 10th, 1927

THE EDUCATION OF THE SURGEON.

To the Editor of The Lancet

Sir,—In my presidential address to the Section of Ophthalmology of the Royal Society of *Medicine* I referred to the important point that progress in ophthalmology was, in the future, to be looked for on the medical side, and later on in speaking of the education of the oculist I referred again to this matter. A few *days* later Sir Berkeley Moynihan in his admirable address to the Medical Society made the same statement in reference to *general* surgery, which he suggested *as an art* had almost reached its finality.

In The Lancet of Dec 4th 1926, " Incipiens and in that of Jan 1st, 1927, " Respiciens," referring to my address missed the point by writing under the heading of " Medicine *or* Surgery for the Oculist, while I said Medicine *and* Surgery—and of course

Sir Berkeley Moynihan said the same, in fact he suggested that the successful surgeon of the future would have to be not only a master of the art and craft of surgery, but also be a pathologist, bacteriologist, chemist, and physician So that it is possible in the future that candidates for hospital surgical appointments would be required to have the diploma of F R C S and the degree of M D

This ought to suit " Incipiens " as he says he does not propose to lower the standards He says he wants to see these two diplomas equalised What does he mean by this? The F R C S, England is considered the highest surgical diploma, and the M D the highest medical diploma, and unlike the F R C P they are within the reach of all Is this the equalisation he refers to? Because only in this sense could they be equal.

I cannot agree with anything that " Respiciens " writes, but one remark is calculated to give so wrong an impression that I must refer to it He says, " The tragedy is that men are encouraged to take up ophthalmology in order to obtain their services as clinical assistants and house surgeons, and then, no matter what their attainments, their further progress is debarred, not by an examination in ophthalmology, but by a purely surgical examination " The very large majority of men who take appointments in the eye wards of a general hospital or in an ophthalmic hospital do so because they know how extremely valuable the knowledge gained will be in general practice, and only a small proportion aim at specialising in eye work Where is the tragedy?

One thing is certain, whatever extra knowledge the general or special surgeon may acquire, he must first and foremost be a surgeon, have the tactus eruditus, and be supple and clever with his fingers and hands, and the very derivation of the word and the obsolete name for it—viz, " chirurgeon," implies this I am, Sir, yours faithfully,

Jan 10th, 1927 ERNEST CLARKE

PELLAGRA IN NYASALAND

To the Editor of THE LANCET

SIR,—In your issue of Jan 8th Dr H M Shelley contributes some observations which I may be allowed perhaps to criticise The discovery of a number of cases of pellagra in Nyasaland by myself in 1910 constituted the first record of the disease in Africa south of Lower Egypt, Algiers, and the Red Sea coast with the exception of a few cases seen and diagnosed by Sandwith on Robben Island, none having been described elsewhere in South Africa

My early cases formed the subject of a preliminary communication to the Royal Society of Tropical Medicine and Hygiene [1] The following year a fuller report was published,[2] which has apparently escaped Dr Shelley's notice In that paper I showed that the maize theory was untenable, and I went some way to incriminating the absence of some food factor as playing a part in the ætiology of the disease, while showing that the pathological changes were due to a toxæmia I had already shown that, although the disease was rife in the Central Gaol, cases occurred elsewhere among the general population From the date of my second communication up to the commencement of the late war I had collected a considerable amount of further information which was never published, but tissues from the bodies of nine pellagrins who were submitted to complete post-mortem examination were sent to this country and formed the subject of a preliminary paper by S A Kinnier Wilson,[3] chiefly on the neurological side The pathological changes described by this authority cannot here be discussed at length, suffice it to say that they are those of a chronic diffuse pseudo-systematised degeneration, affecting all portions of the peripheral and central nervous system, and resembling somewhat the condition found in subacute combined degeneration of the cord with no evidence of a vascular or meningeal reaction to infection The changes in the nervous system are toxic in origin, Wilson, from the pathological side, says " It is probable that an ascending toxic lymph stream invades the cord via the lumbar and dorsal posterior roots and that the effects of the toxæmia appear either simultaneously in the nerves and cord or previously in the former," corroborating the following statement made in my first communication from clinical evidence " Taking into consideration the diffuse nature of the cord lesions and the absence of systematisation it would seem probable that the nervous lesions are produced by a toxin entering the theca by the lymphatic spaces of the posterior roots "

The toxic process was, therefore, long ago proved, but Dr Shelley was apparently unaware of Wilson's findings Dr Shelley speaks of a " neuritis of certain peripheral nerves " and of " subacute and combined sclerosis of the cord," whereas the process is a degenerative one He further suggests that " the neuritis produces trophic changes in the areas of skin supplied by these nerves," adding that " these trophic lesions of the skin appear most marked on those parts of the body which are exposed to sunlight, but some cases have been seen with well-marked skin signs on the scrotum and buttocks " He thus appears to believe that the exanthem is the result of a neuritis which affects particular nerves Observations made on a large number of cases have, however, proved to me that the sun's radiations are the only factor in causing the typical distribution of the rash and that the areas involved do not strictly correspond to root areas, much less to any peripheral nerves (In his diagram Dr Shelley shows roots areas under the designation of cutaneous nerves distribution) The sensitisation of the skin to the sun's rays may more probably be due to a circulating toxin like hæmatoporphyrin or phyto-porphyrin

The affection of the scrotal skin, which was, I think, first pointed out by myself, may result from heat and moisture Dr Shelley does not seem to have noticed another condition which I first described in 1911—namely, a rhagades-like soreness of the muco-cutaneous junction at the angles of the mouth, the external canthus of the eye, and at the free margin of the prepuce—a very valuable early sign in many cases

Dr Shelley attempts to find a parallel between the signs in pellagra and myxœdema which, I think, should not be allowed to go unchallenged Of both he says " skin thickened and rough " In pellagra the skin, except where it is the site of the rash or in patients who have not washed or attended to their skin, is not thickened and rough Of both he says " slight œdema present " In pellagra, except in late cases, œdema is not found, while in myxœdema there is no true œdema but a characteristic distribution of subcutaneous infiltration never seen in pellagra Of both he says " skin dry and scaly "—this is only true of the uncared-for skin in a native pellagrin " Tongue swollen "—the condition of the tongue in the two diseases is about as different as possible, the characteristic tongue of pellagra is never seen in myxœdema " Mental dullness and apathy " is ascribed to both conditions—the native pellagrin may appear dull but the mental characteristics in the two conditions in no way resemble each other While it is well known that the thyroid suffers, in common with nearly every other organ of the body, in pellagra and that true myxœdema and pellagra may coexist, there is little evidence that the picture in pellagra is in any particular way due to hypothyroidism On the other hand, while the beneficial effects produced by the administration of thyroid is of interest, the exact mode of its action would require, however, considerable investigation, thyroid is useful in a large variety of conditions

For the reasons given above I am of opinion that the three main conclusions which Dr Shelley draws from his observations are not essentially correct—namely, 'that there is in pellagra · (1) A deficiency in thyroid secretion (2) A neuritis of certain nerves in preference to others (3) Skin lesions corresponding to the cutaneous distribution of those nerves" And I should like to protest against the view often quoted by those who hold that pellagra is a deficiency disease—namely, that the absence of some element produces pathological changes. The absence of something cannot produce anything! In pellagra, as in beri-beri, it is believed that in the absence of some vital element a toxin may develop and produce the pathological changes in the body.

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[1] Trans, 1912, v, No 3

[2] Trans Roy Soc Trop Med, 1913, vii, No 1

[3] Proc Roy Soc Med, 1914, vol vii

I am, Sir, yours faithfully

London, Jan 10th, 1927 HUGH S STANNUS

INFLUENZA AND SOME GLOOMY REFLECTIONS

To the Editor of THE LANCET

SIR,—In common with the majority of my professional brethren I am at the present time called upon to visit large numbers of people suffering from some disease to which the label of ' influenza is perforce given This annual experience is always attended by considerable personal fatigue and discomfort and, in my case at any rate, by a certain amount of shame The laity jibe at our profession because we cannot cure a cold, we acquire protective catchwords with which to change the conversation; we suppress our irritation and recover our self-esteem as best we can —the charge remains true. When the common cold is epidemic and approaches a severity sufficient to cause it to be renamed 'influenza," the layman s accusation becomes a serious one, and that is why I am ashamed both of myself and my profession at this moment Nine years ago some 20 million human beings died within 12 months, apparently of this same disease, and as a member of that group of their fellows which is supposed to be interested in the technique of the suppression of such catastrophes I find something frankly disgraceful in the complacent indifference of the bacteriologists physicians and public health authorities at a time when serious endeavour could be made towards discovering the nature and cure of this disease

Particularly are the bacteriologists to blame Any of us who have attended their meetings and discussions have heard technicians, not all equally competent, recount their experience in growing a microbe which they call the influenza bacillus the discussion being enlivened by adherents of hypotheses which leave death and disease unaffected They appear to be making no serious effort to discover the causal organism. What is being done about the work of Olitzky and Gates? Whether this work is correct or not it is sufficiently suggestive to merit large-scale investigation, it has gone on for a number of years neither dogs nor monkeys are required for its repetition and there is no rival set of observations with any serious number of adherents But I have not met a single bacteriologist in this country who is actively studying this work.

There are certain researches which stand out as being of such immense potential importance that any self-respecting nation should immediately take full and proper steps to refute or confirm them The work of Rosenthal on fæcal sepsis is one instance the work of Banting and Best on insulin is another the work of Gye on cancer is a third and the work of Olitzky and Gates is clearly a fourth Yet as far as I know there is no representative body of bacteriologists in this country who can with authority tell us whether Olitzky and Gates have isolated the virus of influenza or not And until they do we remain futile in the eyes of the layman

Physicians and public health authorities I blame to a lesser degree for this supineness But physicians might at least spare us imbecile articles in the newspapers on the prevention and cure of influenza which may endanger the mental balance of the convalescent Of what use is it to tell working girls not to eat white bread or to warn clerks to take more exercise in order to escape influenza when we have no gleam of certitude as to the invading agent in that disease? Can these authorities not join the natives of the Solomon Islands or the peasants of Siberia and gorge themselves with vitamins in silence until the next pandemic carries them off? As to the public health authorities their responsibility is great. They have the power to enforce investigation by the laboratories Instead of doing so they continue to exhibit tact in their dealings with their professional brethren, and diplomacy and inertia make happy bedfellows

Breaking away from these gloomy reflections (which are shared by many) I must return to my work, which will probably be less interrupted if I subscribe myself,

Yours faithfully,

Jan 8th, 1927 X.

ADOLESCENT ALBUMINURIA

To the Editor of THE LANCET

SIR,—It must be confessed that the want of a simple and reliable test for the condition of the kidneys is an opprobrium to modern medicine. The injection of dyes and blood examination are disappointing where most required; indeed. there seems no reason of an *a priori* nature why these methods should detect slight renal defects If we are thrown back on urinalysis two desiderata are important in my experience The first is some common agreement as to what constitutes albuminuria If one practitioner examines by heating and acidulating the upper layers of urine in the test-tube. or by salicyl-sulphonic acid while another relies on nitric acid or on heating the bottom of the test-tube, the discrepancy in results will be important. The second desideratum is the following up of the clue afforded by the modifying action of rest One often asks oneself: What is the active element in " rest " Is it the horizontal position, equable warmth, muscular immobility cessation of the ingestion of proteids or raising of a serum threshold? This is a fascinating problem which should make appeal to many a biochemist and which might eventually throw light on the early stages of nephritis

I am, Sir, yours faithfully,

Belfast, Jan 4th, 1927. R M. FRASER, M.D.

BACTERIAL CONTENT OF ICE-CREAM

To the Editor of THE LANCET.

SIR—The report by Dr. E. G. Rawlinson that appears under this heading in THE LANCET of Dec 18th should be of great interest to those who study health as a positive entity and not merely as the absence of disease The evidence, I believe so far unchallenged, shows that great quantities of coliform organisms, streptococci, and *B enteritidis sporogenes* were consumed in ice-cream last summer, and nobody one pennyworth the worse—i e no resulting epidemic reported One wonders whether an infantile type of reaction such as ' D and V" would not have been a healthier response on the part of the consumer, especially if as Dr Rawlinson suggests these organisms may act detrimentally later on

The strains in these specimens must have come from a variety of sources, but one naturally wonders whether the one common factor the low temperature played a part in temporarily inactivating the cultures. Whatever the temperature of the ice-cream received at the laboratory it is unlikely that the public would buy and eat it unless cold enough to appear semi-solid. If this is the explanation the ice-cream vendor s role is that of a public alimentary vaccinator!

The increase in numbers of street vendors and the more rapid methods used in distribution in recent years render Dr Rawlinson s results still more significant —I am, Sir, yours faithfully

J. L CHEESMAN.

Public Health Department, Leyton, E, Jan 10th, 1927

Medical News.

UNIVERSITY OF CAMBRIDGE —At a recent examination the following candidates were approved —

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY

Part I —Philippe Bauwens, Ernest Edwin Carter, Gerald Chambers James Cran Coutts Andrew Murray Craib, Robert McGregor Cleland Crawford, Jane Grace Evans-Freke Cummins, Harry Fisher Nathaniel Fram, Denys Bouhier Herbert Hallett, Minnie Edith Hope William Hougham Hudson, John Joseph Luddy, Alfred Tadros Makar, Walter Morrish Abraham Orliansky, Raghuber Dayal Saigol William Hugh Steele, Edgar James Tyrrell Samuel Anthony Withers, and Kenneth John Yeo

UNIVERSITY OF LONDON —At recent examinations the following candidates were successful —

M D

Branch I, Medicine —Elizabeth Mary Cowie Edward Revill Cullinan, Francis Davies, Vivian Feldman, Dorothy Gibson, Reginald Sleigh Johnson Ardeshir Jehangirshah Kohiyar, William Austin Robb, Norman William Snell, and John Greenwood Wilson

Branch III Psychological Medicine —Emma Marjorie Store

Branch IV, Midwifery and Diseases of Women —Harold Jordon Malkin, Henry Kenneth Victor Soltau, and Edith Emily Stephens

Branch V, State Medicine —Donald Davidson

M S

Branch I, Surgery —George Frederick Gibberd, and Walter Roworth Spurrell

UNIVERSITY OF LIVERPOOL —At recent examinations the following candidates were successful —

DIPLOMA IN PUBLIC HEALTH

New Regulations —J S Bradshaw, Helen Standring, S A Talib, O F Thomas, and T S Townsend

Old Regulations —Olive Llewellyn Jones, Eleanor Lancelot, and Vera M Macfarlane

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS —The annual general meeting will be held at 122, Harley-street, London, W, on Jan 17th, at 3 P M, when a discussion on the Observation Case will be opened by Dr. F R G Heaf and Dr N Bardswell It is hoped that there will be several five-minute papers from other members

CHELSEA CLINICAL SOCIETY —A meeting of this society will be held in the Governor's Committee Room at St George's Hospital on Tuesday, Jan 18th, at 8 30 P M., when Dr J D Rolleston will open a discussion on the Practical Results of Recent Researches in Infectious Disease Dr R A O'Brien and other speakers will also take part

SUGGESTED AMALGAMATION OF EYE HOSPITALS —Dr E Graham Little, M P, suggests that the Royal Westminster Ophthalmic, the Central London Ophthalmic, and the Western Ophthalmic Hospitals, which, among them, have 98 beds, should be amalgamated They are all preparing to extend or rebuild, and Dr Little urges the economies that would result from replacing three small hospitals by one "effective central institution" with between 100 and 150 beds He points out that opposite the site of the Central Ophthalmic Hospital in Judd-street, W C, there is an area of land ready for immediate occupation that could at present be secured "which would afford generous accommodation for a hospital of 150 beds or more"

A HOSPITAL FOR OFFICERS' WIVES —The Queen Mary wing of the Louise Margaret Hospital at Aldershot has now been opened Accommodation is provided in the first place for the wives of officers of the Aldershot Command, but, when empty beds permit, the wives of officers serving in other commands, including India, or of officers on half-pay, can benefit There are three beds for general cases and two for maternity cases, with two beds and six cots for children The inclusive fees are 15*s* per day

WASTE TIN FOR HOSPITALS —Commander Moore, the Appeal Secretary of King's College Hospital, is organising a scheme for the collection of empty tin tubes which have contained tooth-paste and medical compounds These tubes are stated to contain 96 per cent of pure tin, and it is proposed to sell the metal for the benefit of the hospital Since the price of tin exceeds £300 a ton and the supply is limited, Commander Moore hopes to derive a large sum from the collection of receptacles that are at present thrown away

BELFAST HOSPITAL FOR SICK CHILDREN —This hospital of 45 beds, has become so unsuitable and inadequate that it is to be rebuilt at a cost of £80 000 The Belfast Corporation have presented a site on the Grosvenor-road

SOUTH-WEST LONDON CHEMISTS' ASSOCIATION —A meeting of this Association will be held at Stevens's Bijou Hall, Bromell's-road, Clapham, on Tuesday, Jan 18th, at 8 30 P M, when Mr L. Carnac Rivett will lecture on Some Aspects of Modern Surgery

NEW NURSES' HOME AT KINGSTON —The Kingston-on-Thames Board of Guardians is about to erect a new home for the nurses at the Kingston and District Hospital which has 800 beds, and the first sod was cut last week by Mr H Broome, the chairman of the board The home will cost £100,000

THE LATE SIR H E DIXEY —The death occurred suddenly on Jan 6th at his home in Great Malvern of Sir Henry Edward Dixey at the age of 75 He was educated at the University of Aberdeen, where he graduated M B C.M, in 1878 and M D in 1881, and after qualifying he was for a time house surgeon in Preston Royal Infirmary He retired from practice some years ago, and was knighted in 1925 in recognition of political and public services He took an active interest in social, civic, and political matters, was an alderman of the Worcestershire County Council, and a former sheriff He interested himself greatly in public health, was a keen advocate of open air schools, took an active part in the campaign against tuberculosis, and did excellent work in connexion with the Knightwick Sanatorium.

PENSIONS MINISTRY HOSPITALS —The ninth annual report of the Ministry of Pensions, which comes down to March 31st, 1926, shows that there are still 22 hospitals and 79 clinics under the direct control of the Ministry In addition the Ministry reserves accommodation in many civil institutions of a similar nature "to provide the most approved and modern forms of treatment for injuries and diseases of types, peculiarly related to war service, for which adequate provision is not otherwise obtainable" There has been a substantial decrease in the cost of medical boards owing to the smaller number of conditional pensioners requiring examination

SOCIETY OF MEDICAL OFFICERS OF HEALTH —A meeting of this Society will be held at 1, Upper Montague-street, Russell-square, London, W C, on Friday, Jan 21st, at 5 P M, there will be a discussion on the Education of the Public in regard to Modern Methods of Disease Prevention (Premunisation, Immunisation, &c) from the point of view of the Government Department (Dr S Monckton Copeman, F R S), the Medical Officer of Health (Dr C W Hutt), the Press (Lord Riddell), the Public (Dean Inge) and the Laboratory Director (Prof J C G Ledingham, F R S)

BRITISH EMPIRE CANCER CAMPAIGN —In the absence of Lord Cave, Sir Charles Gordon-Watson presided at the quarterly meeting of the Grand Council of the British Empire Cancer Campaign held on Jan 11th Sir D'Arcy Power was elected a member of the Council on the nomination of the Imperial Cancer Research Fund The grant of £600 for the whole-time services of a medical officer to the London Association of the Medical Women's Federation, which is using a quantity of the Campaign's radium, was renewed for a further period of one year A grant of £500 was made to Mr F C Pybus, F R C S, for expenses to be incurred by the employment of an assistant in connexion with research at Newcastle-on-Tyne Reports were received from the representatives of the Campaign who visited American and continental cancer research laboratories It was stated that the journal of abstracts, known as the *Cancer Review*, published by the British Empire Cancer Campaign, has been much appreciated in the United States, serving as a connecting link between research workers in America and in this country A confidential report was received from the deputation of the Campaign which visited Liverpool to investigate the Blair Bell lead treatment, and an application was considered from St Bartholomew's Hospital, London, for assistance in further investigation of the treatment with lead A grant, not exceeding £1000, and to be reconsidered from year to year for the next five years, was made to this hospital for carrying out new investigations beyond the facts already established by Prof Blair Bell and the workers in Liverpool The investigations will be under the control of a scientific committee consisting of Sir Thomas Horder, Sir Charles Gordon-Watson, Mr. W D Harmer, Mr J E H Roberts, Mr M Donaldson, Dr G Graham, Prof F L Hopwood, Mr J B Hume, and Dr R G Canti The Council expressed the hope that the Liverpool Medical Research Organisation will link up with the impending appeal of the British Empire Cancer Campaign of Lancashire and Cheshire, which has already been joined by Manchester University Sir William Willcox was elected a member of the Preliminary Inquiry Committee of the Campaign

DONATIONS AND BEQUESTS.—Mr. W. R. Morris, the motor-car manufacturer, has given £101,000 to St. Thomas's Hospital.—Mr. John Dallas, of Glasgow, has given £1500 to the Royal Infirmary, Glasgow, for the endowment of a bed.

THE LATE DR. HAROLD HEBBLETHWAITE.—The death has occurred at Burley-in-Wharfedale, Leeds, of Harold Hebblethwaite, one of the best-known practitioners in Wharfedale. He was born at Bradford in 1862, received his medical education in what was then the Yorkshire College, Leeds, and the Leeds Medical School, and qualified as M.R.C.S. Eng. and L.S.A. Lond. in 1887, having been prosector in the anatomical department of the College. He was for many years associated with the Volunteers and afterwards with the Territorials, and during the late war acted as medical officer of the Brockton camp for prisoners-of-war. He was medical officer of health for Burley-in-Wharfedale. He took much interest in St. John Ambulance Association in Staffordshire and was one of the examiners for this body. Dr. Hebblethwaite leaves a daughter and two sons, the younger of whom, Dr. A. S. Hebblethwaite, is resident medical officer of the Leeds City Hospital for Infectious Diseases.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Jan. 17th.—8.30 P.M., SOCIAL EVENING. Fellows, Members of Sections, and their friends will be received in the Library by the President and Lady Berry. At 9.30 P.M. Prof. A. W. Sheen will give an address on Medicine in Ancient Greece (with illustrations).

TUESDAY.—5.30 P.M., SPECIAL GENERAL MEETING OF FELLOWS. To consider and if approved to confirm the alterations in the by-laws made by the Council of the Society so as to provide for the office of honorary editors. Ballot for election to the Fellowship. 8.30 P.M., PATHOLOGY. G. M. Findlay: Tar Tumours in Rats. J. A. Arkwright: The Values of Different Kinds of Antigens in T.A.B. Vaccines. P. Fildes: Tetanus. S. P. Bedson: Some Observations on the Filtration of Herpes Virus Through Collodion Membranes.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. Papers: Dr. A. Currie: The Medical History of the First Three Wives of Henry VIII. and Their Offspring. Mr. W. R. Dawson: Contributions to the History of Mummification. 8.30 P.M., SURGERY. Paper: Dr. J. M. T. Finney (of the Johns Hopkins Hospital, Baltimore, U.S.A.): Some Considerations Concerning the Pathology and Treatment of Gastric and Duodenal Ulcers.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Mr. H. S. Souttar: Demonstration of Steam Cautery and Cases Treated thereby. Dr. H. Semon: Cases Treated by Steam Cautery. Other cases will be shown.

FRIDAY.—The Library will be open until 10 P.M. 4.30 P.M., BALNEOLOGY AND CLIMATOLOGY. (Council meeting at 4 P.M.) Dr. Llewellyn J. Llewellyn will open a discussion on Climacteric Arthritis. Speakers: Dr. Barnes Burt, Dr. Warren Crowe, Dr. F. G. Thomson, Dr. R. G. Gordon, Dr. Bassett Jones, Dr. W. J. Midelton, Dr. Halls Dally, Dr. Vincent Coates, Dr. S. W. Patterson, and Dr. M. B. Ray. 8 P.M., OBSTETRICS AND GYNÆCOLOGY. Joint meeting of the Section with the Medico-Legal Society. The Right Honble. Lord Justice Atkin will preside. Discussion on the Ethical, Legal, and Medical Aspects of Abortion. Speakers: Dr. J. S. Fairbairn, Lord Riddell, Dr. T. Watts Eden, and Sir Travers Humphreys. 8.30 P.M., ELECTRO-THERAPEUTICS. Discussion on *Light Treatment in Surgical Tuberculosis.* Opener: Sir Henry Gauvain.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Jan. 20th.—8.15 P.M., Demonstration at 7.45 P.M. A paper on the Hæmoglobinurias will be read by Prof. J. W. W. Stephens, F.R.S., of the Liverpool School of Tropical Medicine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Jan. 17th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 2 P.M., Mr. Donald Armour: Operations. 4 P.M., Mr. Tyrrell Gray: Abdominal Pain.

TUESDAY.—10 A.M., Medical Registrar: Clinical Methods. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—2 P.M., Mr. Tyrrell Gray: Operations. 2 P.M., Dr. Owen: Medical Out-patients. 4 P.M., Dr. Price: Methods of Anæsthesia in Special Cases.

THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 3 P.M., Sir Henry Simson: Demonstration of Fractures. 3 P.M., Sir Henry Simson: Gynæcological Wards. 4 P.M., Dr. Snowden: The Development of the Mind.

FRIDAY.—10.30 A.M., Dr. Dowling: Skin Dept. 11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Mitsto: Throat, Nose and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Mr. Banks Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 5 P.M., Operations, Medical, Surgical and Special Out-patient Departments. Saturdays, 10 A.M. to 1 P.M.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 17th, to SATURDAY, Jan. 22nd.—COMBINED COURSE IN DISEASES OF CHILDREN at the Children's Clinic and the Royal Free Hospital. Afternoons and some mornings.—PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. Daily, 10.30 P.M. to 5.30 P.M., intensive course as per syllabus. Second week.—ROYAL EAR HOSPITAL, Southwark. Mon., Mr. Latchworth; Tues., Mr. Griffiths; Thurs., Mr. MacCall; Fri., Mr. Dorrell. Special demonstrations at 3 P.M. free to members of the medical profession.—ST. MARY'S HOSPITAL, Paddington, W. Wed., 2 P.M., Mr. Fitzwilliams: Ward Round. Free to members of the medical profession.—BETHLEM ROYAL HOSPITAL, S.E. Tues. and Sat., 11 A.M., Lecture demonstrations on Psychoses. All information as to fees, &c., obtainable from the Secretary of the Fellowship of Medicine, 1, Wimpole-street, W. 1.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, The Prince of Wales's General Hospital, N.

INTENSIVE COURSE.

MONDAY, Jan. 17th.—Dr. D. Kirkhope: The Prophylaxis of Diphtheria and Scarlet Fever.

TUESDAY.—Dr. I. R. Yealland: The Treatment of Anxiety Neurosis.

WEDNESDAY.—Mr. Aubrey Goodwin: The Modern Treatment of Toxæmias of Pregnancy.

THURSDAY.—Dr. A. J. Whiting: Spectral Heart Disease.

FRIDAY.—Dr. J. Browning Alexander: Ætiology and Treatment of Rheumatoid Arthritis.

Morning demonstrations, 10.30 to 1 P.M. Hospital clinics, 2 to 4 P.M. Clinical lectures, 4.30 P.M.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Jan. 21st.—4 P.M., Dr. Andrew Wylie: Dysphagia.

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE.

TUESDAY, Jan. 18th.—3.15 P.M., Mr. T. T. Higgins: The Treatment of Varicose Veins by Injection. Free. Tea at 4.15 P.M.

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-sq., W.C.

TUESDAY, Jan. 18th.—9 P.M., Mr. J. M. T. Finney: Surgery of the Stomach and Duodenum.

WEDNESDAY.—9 P.M., Mr. F. Moore: Acute Glaucoma.

THURSDAY.—Prof. A. W. Sheen: Early Recognition of Surgical Emergencies. Dinner, 8 P.M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Jan. 20th.—4 P.M., Mr. Lloyd: Retropharyngeal Abscess.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

THURSDAY, Jan. 20th.—5 P.M., Dr. Kenneth Bailey: Pathology Demonstration.

Appointments.

Westminster Hospital: DELITTLE, D. L., M.B., B.S., OSTER, M. N., L.R.C.P. Lond., M.R.C.S., House Physicians; LAVERS, A. H., L.R.C.P., M.R.C.S., CORBETT, C., L.R.C.P. Lond., M.R.C.S., House Surgeons; MCKELVEY, M. P., L.R.C.P. Lond., M.R.C.S., Resident Obstetric Assistant.

Certifying Surgeon under the Factory and Workshop Acts: PUGH, A. B., L.R.C.P. Lond., M.R.C.S. (Torrington); ASHCROFT, P. A., L.R.C.P. Lond., M.R.C.S. (Littleborough).

Vacancies.

For further information refer to the advertisement columns.

Adelaide University, South Australia.—Elder Professorship of Anatomy. £1100.

Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £140.

Birmingham General Hospital.—Med. Reg. and Res. M.O. £155.

Bradford Royal Infirmary.—H.S. £150.

Cambridge, Addenbrooke's Hospital.—Cas. O. and Res. Anæsthetist. At rate of £130. Also Hon. Asst. P. for Electrical and X Ray Dept.

City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.

Medical News.

UNIVERSITY OF CAMBRIDGE —At a recent examination the following candidates were approved —

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY

Part I —Philippe Bauwens, Ernest Edwin Carter, Gerald Chambers James Cran Coutts, Andrew Murray Craib, Robert McGregor Cleland Crawford, Jane Grace Evans Freke Cummins, Harry Fisher, Nathaniel Fram, Denys Bouhier Herbert Hallett, Minnie Edith Hope, William Hougham Hudson, John Joseph Luddy, Alfred Tadros Makar, Walter Morrish Abraham Orliansky, Raghuber Dayal Saigol, William Hugh Steele, Edgar James Tyrrell Samuel Anthony Withers, and Kenneth John Yeo

UNIVERSITY OF LONDON —At recent examinations the following candidates were successful —

M D

Branch I, Medicine —Elizabeth Mary Cowie Edward Revill Cullinan Francis Davies, Vivian Feldman, Dorothy Gibson, Reginald Sleigh Johnson, Ardeshir Jehangirshah Kohiyar, William Austin Robb, Norman William Snell, and John Greenwood Wilson

Branch III, Psychological Medicine —Emma Marjorie Store

Branch IV, Midwifery and Diseases of Women —Harold Jordon Malkin, Henry Kenneth Victor Soltau, and Edith Emily Stephens

Branch V, State Medicine —Donald Davidson

M S

Branch I, Surgery —George Frederick Gibberd, and Walter Roworth Spurrell

UNIVERSITY OF LIVERPOOL —At recent examinations the following candidates were successful —

DIPLOMA IN PUBLIC HEALTH

New Regulations —J S Bradshaw, Helen Standring, S A Talib, O F Thomas, and T S Townsend

Old Regulations —Olive Llewellyn Jones, Eleanor Lancelot, and Vera M Macfarlane

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS —The annual general meeting will be held at 122, Harley-street, London, W., on Jan 17th, at 3 P M, when a discussion on the Observation Case will be opened by Dr F R G Heaf and Dr N Bardswell It is hoped that there will be several five-minute papers from other members

CHELSEA CLINICAL SOCIETY —A meeting of this society will be held in the Governor's Committee Room at St George's Hospital on Tuesday, Jan 18th, at 8 30 P M, when Dr J D Rolleston will open a discussion on the Practical Results of Recent Researches in Infectious Disease Dr R A O'Brien and other speakers will also take part

SUGGESTED AMALGAMATION OF EYE HOSPITALS —Dr E Graham Little, M P, suggests that the Royal Westminster Ophthalmic, the Central London Ophthalmic, and the Western Ophthalmic Hospitals, which, among them, have 98 beds, should be amalgamated They are all preparing to extend or rebuild, and Dr Little urges the economies that would result from replacing three small hospitals by one "effective central institution" with between 100 and 150 beds He points out that opposite the site of the Central Ophthalmic Hospital in Judd-street, W C, there is an area of land ready for immediate occupation that could at present be secured "which would afford generous accommodation for a hospital of 150 beds or more"

A HOSPITAL FOR OFFICERS' WIVES —The Queen Mary wing of the Louise Margaret Hospital at Aldershot has now been opened Accommodation is provided in the first place for the wives of officers of the Aldershot Command, but, when empty beds permit, the wives of officers serving in other commands, including India, or of officers on half-pay, can benefit There are three beds for general cases and two for maternity cases, with two beds and six cots for children The inclusive fees are 15*s* per day

WASTE TIN FOR HOSPITALS —Commander Moore, the Appeal Secretary of King's College Hospital, is organising a scheme for the collection of empty tin tubes which have contained tooth-paste and medical compounds These tubes are stated to contain 96 per cent of pure tin, and it is proposed to sell the metal for the benefit of the hospital Since the price of tin exceeds £300 a ton and the supply is limited, Commander Moore hopes to derive a large sum from the collection of receptacles that are at present thrown away

BELFAST HOSPITAL FOR SICK CHILDREN —This hospital, of 45 beds, has become so unsuitable and inadequate that it is to be rebuilt at a cost of £80,000 The Belfast Corporation have presented a site on the Grosvenor-road

SOUTH-WEST LONDON CHEMISTS' ASSOCIATION —A meeting of this Association will be held at Stevens's Bijou Hall, Bromell's-road, Clapham, on Tuesday, Jan 18th, at 8 30 P M, when Mr L Carnac Rivett will lecture on Some Aspects of Modern Surgery

NEW NURSES' HOME AT KINGSTON —The Kingston on-Thames Board of Guardians is about to erect a new home for the nurses at the Kingston and District Hospital which has 600 beds, and the first sod was cut last week by Mr H Broome, the chairman of the board The home will cost £100,000

THE LATE SIR H E DIXEY —The death occurred suddenly on Jan 6th at his home in Great Malvern of Sir Henry Edward Dixey at the age of 75 He was educated at the University of Aberdeen, where he graduated M.B C M, in 1878 and M D in 1881, and after qualifying he was for a time house surgeon in Preston Royal Infirmary He retired from practice some years ago, and was knighted in 1925 in recognition of political and public services He took an active interest in social, civic, and political matters, was an alderman of the Worcestershire County Council, and a former sheriff He interested himself greatly in public health, was a keen advocate of open air schools, took an active part in the campaign against tuberculosis, and did excellent work in connexion with the Knightwick Sanatorium

PENSIONS MINISTRY HOSPITALS —The ninth annual report of the Ministry of Pensions, which comes down to March 31st, 1926, shows that there are still 22 hospitals and 79 clinics under the direct control of the Ministry In addition the Ministry reserves accommodation in many civil institutions of a similar nature "to provide the most approved and modern forms of treatment for injuries and diseases of types, peculiarly related to war service, for which adequate provision is not otherwise obtainable" There has been a substantial decrease in the cost of medical boards owing to the smaller number of conditional pensioners requiring examination

SOCIETY OF MEDICAL OFFICERS OF HEALTH —A meeting of this Society will be held at 1, Upper Montague-street, Russell-square, London, W C, on Friday, Jan 21st, at 5 P M, there will be a discussion on the Education of the Public in regard to Modern Methods of Disease Prevention (Premunisation, Immunisation, &c) from the point of view of the Government Department (Dr S Monckton Copeman, F R S), the Medical Officer of Health (Dr C W Hutt), the Press (Lord Riddell), the Public (Dean Inge), and the Laboratory Director (Prof J C G Ledingham, F R S)

BRITISH EMPIRE CANCER CAMPAIGN —In the absence of Lord Cave, Sir Charles Gordon-Watson presided at the quarterly meeting of the Grand Council of the British Empire Cancer Campaign held on Jan 11th Sir D'Arcy Power was elected a member of the Council on the nomination of the Imperial Cancer Research Fund The grant of £600 for the whole-time services of a medical officer to the London Association of the Medical Women's Federation, which is using a quantity of the Campaign's radium, was renewed for a further period of one year A grant of £500 was made to Mr F C Pybus, F R C S, for expenses to be incurred by the employment of an assistant in connexion with research at Newcastle-on-Tyne Reports were received from the representatives of the Campaign who visited American and continental cancer research laboratories It was stated that the journal of abstracts, known as the *Cancer Review*, published by the British Empire Cancer Campaign, has been much appreciated in the United States, serving as a connecting link between research workers in America and in this country A confidential report was received from the deputation of the Campaign which visited Liverpool to investigate the Blair Bell lead treatment, and an application was considered from St Bartholomew's Hospital, London, for assistance in further investigation of the treatment with lead A grant, not exceeding £1000, and to be reconsidered from year to year for the next five years, was made to this hospital for carrying out new investigations beyond the facts already established by Prof Blair Bell and the workers in Liverpool The investigations will be under the control of a scientific committee consisting of Sir Thomas Horder, Sir Charles Gordon-Watson, Mr. W D Harmer, Mr J E H Roberts, Mr M Donaldson, Dr G Graham, Prof F L Hopwood, Mr J B Hume, and Dr R G Canti The Council expressed the hope that the Liverpool Medical Research Organisation will link up with the impending appeal of the British Empire Cancer Campaign of Lancashire and Cheshire, which has already been joined by Manchester University Sir William Willcox was elected a member of the Preliminary Inquiry Committee of the Campaign

COLONIAL HEALTH REPORTS

Bechuanaland

In the report on the affairs of this Protectorate in South Africa for 1925–26 it is stated, in the section devoted to medical matters, that during the year the health conditions in general had been better than for some years past Notwithstanding the intense heat of the summer the mass of the population did not appear to have been affected adversely Both in type and incidence the prevailing diseases were less severe and widespread, and the economic life of the country may be said to have suffered little or no disturbance from their effects This was due no doubt, to the abundance of food supplies available in the resources of stored grain and the good grazing following upon last year's heavy rainfall As in the past, malaria and syphilis came first in order of importance, but respiratory and gastro-intestinal troubles —as for the most part having a common origin in malarial infection—took a high place in the list Epidemic outbreaks were confined to influenza colds and whooping-cough Of other infections, sporadic cases of measles rubella and amaas (mild small-pox) were reported here and there A special feature as regards the chest complications associated with some of these was the tendency to run a favourable course During the months of May and June, however, an unusual mortality amongst natives, including bushmen, was reported from the Kalahari In all about 100 persons were said to have died; but, although it was impossible to verify the number to a certainty, there is no doubt that the death-rate was unusual The symptoms pointed to severe malaria complicated with pneumonia following upon the heavy rains of the preceding months The natives reported that mosquitoes in such numbers had never before appeared There are tracts in these regions where rain does not fall more frequently than once in a generation, and if the rainfall is then heavy the eggs deposited by insects during many years are brought to life Provision has been made for building a modern hospital at Serowe and a small hospital hut at Maun, N'gamiland The returns of diseases are the highest recorded in the history of the territory This is more the result of increased facilities afforded for observation and treatment, through the extension of the medical service, than of undue prevalence or severity At Gabarones and Molepolole the number of treatments and attendances for the year was 3880 Of these 53 were hospital cases (six Europeans, 47 natives), there were three deaths At Kanye the total number of individual cases treated—both indoor and outdoor—was 1426, of whom 43 were Europeans Sixty-two cases were treated in the Mission Hospital and 49 operations performed, the recorded deaths were three At Francistown 861 cases were attended and treated At Maun, N'gamiland, 1084 individual cases were treated, with 15 deaths (nine from pneumonia, five from malaria, and one from blackwater fever) At Serowe the returns show 158 Europeans treated, with two deaths, and 380 natives, with seven deaths At Ghanzi 313 cases were treated—57 Europeans and 256 natives, there were no deaths There is an all-round increase in the number of syphilitic cases treated

The Protectorate lies roughly between 2000 and 5000 feet above sea-level and only a few people live at the cooler altitudes of from 4000 to 5000 feet The portion of the country inhabited by the greater number of both Europeans and natives is adjacent to the only line of railway, which passes through the eastern side of the territory for a distance of 400 miles, the average altitude of the stations and sidings along this section of the line is 3418 feet The Protectorate has not been surveyed as a whole, but its area is estimated at 275,000 square miles The population at the last census was 152,983, of whom 1743 were whites, 52 Indians, 1003 coloured, and 150,185 natives

Nigeria

A report on the Colony and Protectorate of Nigeria for the year 1925 has been prepared by Mr H M-M Moore, principal assistant secretary The following is a summary of the medical section The health of the inhabitants of Nigeria cannot be said to have been good during 1925 The violence of epidemics of relapsing fever and cerebrospinal fever in the Northern Provinces was devastating in its effects in several areas and the death-roll has been enormous Relapsing fever had been severe in the north in 1924, and fears were then expressed that, owing to its method of propagation, extension would take place, these fears were fully justified The prophylaxis against these two diseases is simple, and propaganda might do much to mitigate the severity of the outbreaks In addition, the remedy for relapsing fever is almost a specific, and, where opportunity occurred to apply it, the death-rate among cases treated was reduced to 1 per cent Unfortunately, the aversion of the greater part of the population to European medicine is a heavy handicap Plague, though not assuming the alarming proportions of the outbreak in 1924, continued intermittently, and will probably not be eliminated from Lagos until the town has been replanned and to a large extent rebuilt A more serious feature was the extension of the disease to the mainland The possibility of this occurrence had always been foreseen, owing to the difficulty of controlling the canoe traffic with the mainland A small outbreak occurred at Agege in March, 10 cases being diagnosed while in August a considerable outbreak occurred in Ijebu-Ode district, there being over 500 cases, with 73 per cent mortality A smaller outbreak in November at Abeokuta, 100 per cent fatal, was directly traced to a child who was brought to Lagos, infected there, and returned by train Four medical officers were lent to augment the sanitary staff and all these outbreaks were got under control quickly, that at Ijebu-Ode being practically stamped out by November

For the first time since 1917 yellow fever made a demonstration in force, and a serious number of deaths of Europeans resulted It is probable that the concentration of sanitary effort on the combating of plague was partly responsible for the conditions leading to this outbreak An intensive antimosquito campaign has since reduced the stegomyia index to the lowest yet recorded in Lagos The Rockefeller Yellow Fever Commission is now established at Yaba, and is conducting researches at all the stations at which yellow fever occurred Small-pox frequently occurs in small outbreaks in all parts of Nigeria, but the extent of such outbreaks is becoming noticeably less year by year Vaccination continues to be actively pushed, and in two instances native administrations have adopted compulsory vaccination of infants Owing to improved methods of transport, the proportion of successful vaccinations has shown a striking improvement

The sanitary department has been strengthened by the addition of five medical officers of health, and the education of the inhabitants in hygienic rules and practice is proceeding with increasing vigour Preparations for a child welfare campaign have been made and will be vigorously carried out Two lady medical officers are making a commencement with instruction in obstetrics and the training of midwives, one at Lagos and the other at Abeokuta

Uganda

The territories comprising the Uganda Protectorate lie between the Belgian Congo, the Anglo-Egyptian Sudan, Kenya, and Tanganyika The Protectorate extends from one degree of south latitude to the northern limits of the navigable waters of the Victoria Nile at Nimule It is flanked on the east by the natural boundaries of Lake Rudolf, the river Turkwel, Mount Elgon (14,200 feet), and the Sci River, running into the north-eastern waters of Lake Victoria, whilst the outstanding features of the western side are the Nile watershed, Lake Albert, the river Semliki, the Ruwenzori Range (16,794 feet), and Lake Edward The population on 31st Dec, 1925, was estimated to be 3,148,481 —viz, 1703 Europeans, 9176 Asiatics, and 3,137,602 native inhabitants According to the latest annual report the country continues to prosper, but it is pointed out that Uganda is at present dependent almost entirely upon its cotton crop and that any set-back in its cultivation or marketing, therefore, would instantly be reflected in the trade of the country As a precaution against such a contingency natives are being encouraged to grow other economic crops upon which they may fall back in case of necessity The establishment of a labour department for the provision of labourers for Government departments, and the care of labourers throughout the Protectorate, has been justified The demands of all departments were met and the physical condition of the labourers themselves at the termination of their contracts amply proved, if such proof were needed, the wisdom of providing them with a well-balanced ration The activities of the medical department and the missions were extended during the year A decline in the total death-rate and an increase in the birth-rate were recorded, and the excess of births over deaths accounted for an increase of 12 917 in the native population The progressive manner in which such excesses have been maintained since 1921, when the total deaths exceeded the total births over the whole Protectorate, is very satisfactory An International Commission, with headquarters at Entebbe, was appointed by the League of Nations, to study scientific questions relating to sleeping sickness The climate of the Protectorate as a whole, though pleasant, cannot be considered healthy for Europeans European children as a rule thrive in infancy, but considerable risk is attached to bringing them out when they are 2 or 3 years old, as they are liable to attacks of malaria and the resultant anæmia The health of adults depends mainly on their mode of life, and, with care, constitutional health should not be impaired, but even if physical fitness is maintained the altitude and proximity to the Equator combine to produce nervous strain after prolonged residence Outdoor manual labour is dangerous for Europeans, and on plantations a manager's or owner's duties are for the most part supervisory The favourite localities for European plantations are the Buganda

Ealing Borough —Asst M O H £600
Evelina Hospital for Children, Southwark, S E —H P At rate of £120
Hastings Royal East Sussex Hospital —Hon S
Hospital for Sick Children, Great Ormond street W C —Res Med Supt Also Surg Reg Each £300 Also Phys to Out-patients
Leamington Spa Warneford General Hospital —Res H S At rate of £150
Liverpool, Waterloo and District General Hospital —Res H S £50
London Homœopathic Hospital, Great Ormond-street, W C —Asst P
London Hospital, E —Asst P
London Lock Hospital 91, Dean street, W —H S At rate of £200
Macclesfield General Infirmary Second H S £150
Mildmay Mission Hospital, Austin street, Bethnal Green, E —Jun Res M O £100
National Hospital, Queen square, W C —Registrar £200
Northampton General Hospital —Hon Asst Surg
North Middlesex Hospital, Edmonton, N —Res M O £200
Royal Chest Hospital, City-road E C —Pathologist £300
Royal National Orthopædic Hospital, 234, Great Portland street, W —Hon S, Hon P, and Hon Dental Surg
Royal Waterloo Hospital for Children and Women, Waterloo road, S E —Hon Med Reg
Royal Westminster Ophthalmic Hospital, King William street, Strand, W C —Refraction Assts Each £100
Ryde Royal Isle of Wight County Hospital —Res H S £180
St Thomas s Hospital, S E —Surg to Out patients
Sheffield Royal Infirmary —Ophth H S At rate of £80.
South London Hospital for Women, South Side, Clapham Common, S W —Clin Assts
Stafford, Staffordshire General Infirmary —H S At rate of £200
Sunderland County Borough —M O H £1000
Victoria Hospital for Children Tite street, Chelsea, S W —H P and H S Each at rate of £100
Warrington Infirmary and Dispensary —Pathologist Two days per week £50
Welsh Board of Health —M O £600
York County Hospital —H S in Eye, Ear and Throat Dept £150

The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Killin, Perthshire

The Secretary of State for the Home Department hereby gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for Selkirk County (Sheriffdom of Berwick, Roxburgh, and Selkirk) Applications should reach the Private Secretary, Scottish Office, not later than Feb 1st

Births, Marriages, and Deaths.

BIRTHS

COLVILLE —On Jan 5th at Glencairn, Oldfield road, Bath, the wife of Oliver Colville, M D, of a son

GIMLETTE —On Jan 7th at Wiesbaden, the wife of Captain G T Gimlette, R A M C, of a son

ROFFEY —On Jan 2nd at a London nursing home, the wife of Dr Bernard Wilson Roffey, of a son

MARRIAGES

BLAIR—BROWN —On Jan 8th, 1927, at St James's Church, Gerrard's Cross, by the Rev J M Glubb, M A, assisted by the Rev A Laws, Leslie George Blair, son of Mr and Mrs Charles J Blair of Birkenhead to Olive Stewart Brown, daughter of Mr and Mrs Robert Brown of Rosegarth, Gerrard's Cross

HANAFIN—SIDNEY —On Dec 21st, 1926, at Christ Church, Aden, Major John Berchmans Hanafin, C I E, I M S to Mary Rosamond, younger daughter of the late Mr and Mrs Marlow Sidney, of Blyth, Northumberland

WHITTICK—OBERFOELL —On Jan 7th, very quietly in London, F Percy Whittick, M.D, of Upper Brook street, W, to Johanna C Oberfoell, widow of Augustus Oberfoell, M D

DEATHS.

COLLIER —On Jan 4th, suddenly, at Woodstock-road, Oxford, Ivy Collier, M B, B S

DISMORR —On Jan 4th, at Purton, Wilts, Henry Bertram Dismorr, M R C S Eng, L R C P Lond, aged 49

FORBES —On Nov 24th, 1926, William Wood Forbes O B E, Major late R A M C, Director Quarantine Board of Egypt

GAITSKELL —On Jan 6th, at Wickhamway, Beckenham, Edward Forbes Gaitskell, M D (late of Sydenham), in his 88th year

HUTCHINSON —On Jan 6th very suddenly, at Maloja, Switzerland, Frederick Eric Arundel Stewart Hutchinson, M D, of Hove, aged 37

TWIGG —On Jan 6th, at Malahide, Co Dublin, Richard Crawford Twigg, M B, of Nightingale lane, Balham, S W, aged 62 years

WALLIS —On Jan 4th, C Edward Wallis, M R C S, L R C P, L D S, of Welbeck-street

N B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Comments, and Abstracts.

THE DISPOSAL OF SEWAGE

ON Jan 3rd Dr W Butler and Mr J H Coste, F I.C., read a paper on Modern Methods of Sewage Disposal, before the Society of Chemical Industry Pointing out the limited value of sedimentation, they said that the time taken by very small particles in falling a useful distance may easily be too long for sedimentation in a channel which is not inordinately long and shallow Even if perfect sedimentation were possible the effluent obtained would contain organic matters in solution and would be putrescible, it would be unfit for discharge into a river unless the flow were many times greater than that of the effluent The addition of chemical precipitants merely causes coagulation of the suspended particles, and does not remove matters in true solution

After reference to the disadvantages of land treatment, they discussed the nature of the processes occurring in the intensive biological treatment of sewage The natural processes which are part of the life history of the varied flora and fauna of sewage are stimulated and accelerated, so that what takes days on land takes hours in a biological tank W J Dibdin utilised coke or some other surface as a nidus for the organisms The advance made by Mr G J Fowler and his associates lay in the fact that material was generated in the sewage itself by maintaining it for weeks in a state of agitation and aeration caused by blowing air through it The small quantities of activated sludge thus obtained are utilised for the treatment of more sewage, and by continued repetition sufficient material is obtained for large quantities of sewage to be converted in a few hours into a clear, bright fluid, having a slight earthy smell, relatively free from organic matter and with the original ammonia of the sewage replaced more or less completely by nitrates The increase in the bulk of the activated sludge obtained by repeated treatment shows that some of the organic matter of the sewage is removed as such, probably both by sedimentation of suspended matters and by precipitation of colloids, whilst the formation of nitrate shows that changes of an oxidative character also occur Experiments made by Dr Butler and Mr Coste with an air-blowing diffuser plant showed that much reduction takes place in the albuminoid ammonia The clarity of the effluent is markedly increased, and it is found to be stable for three days in an open vessel It is to be noted that practically no change occurs in the pH value When used for sedimented sewage in place of crude sewage the plant proved to be capable of dealing with four times the volume The effect of mechanical agitation with paddles was also tried and found to be satisfactory, both for crude and sedimented sewage Aeration tanks of the diffuser plant were later used in conjunction with the paddle plant for re-aeration of the sludge which had been found to be the essential part of the process The results of these experiments led them to the conclusion that for the combined aeration and agitation of activated sludge and sedimented sewage, agitation by mechanical means such as paddles and propellers is most suitable, but for regeneration of the activated sludge—in order to raise it to its highest pitch of activity—the diffusion of air by blowing best meets the requirements They are of opinion that where it has not been found necessary to adopt separate aeration of the returned sludge only, the mixture of sewage and sludge has been allowed to remain in the treatment tanks for an unnecessarily long time in order than this aeration may be effected "It is surely better in every way to use treatment tanks to their full capacity for the preparation of an effluent and to restore the impaired activity of the relatively small volume of sludge by a separate treatment in a tank or tanks of suitable capacity"

Experiments made showed that the composition of a mixture of activated sludge and sewage does not alter appreciably during five hours when submitted to agitation without aeration, air is therefore a necessary factor in the process That the air acts as an oxidising agent was shown by analysis of the air above activated sludge and mixtures of activated sludge and sewage, placed in bottles, when oxygen was found to be absorbed and carbon dioxide produced An immediate change occurs, practically at the moment of mixing, when activated sludge is added to sewage, this is shown by the amount of oxygen absorbed from permanganate in four hours being invariably less than that which is theoretically calculated for the constituent liquids

Dr Butler and Mr Coste have made experiments which, they consider, show clearly that all the useful action of activated sludge is associated with the moist solid and not with the liquid portion

A Lecture
ON
ANÆSTHETICS

Delivered to Practitioners attending the Post-Graduate Course at Aberdeen

BY J ROSS MACKENZIE, MD ABERD,
ANÆSTHETIST AND LECTURER ON ANÆSTHETICS, ROYAL ABERDEEN HOSPITAL FOR SICK CHILDREN, ASST ANÆSTHETIST, ABERDEEN ROYAL INFIRMARY

ANÆSTHETICS are of importance to the practitioner and his patients from three points of view (1) where the patient is sent to hospital or to a nursing home and the practitioner is not the anæsthetist, (2) where the surgeon comes to the patient at home, or to the cottage hospital, to operate and the practitioner gives the anæsthetic, (3) where the practitioner gives the anæsthetic and performs the operation

There are several factors which modify general anæsthesia no matter by whom it is administered (1) the preparation of the patient, (2) the psychic element in the patient, (3) the choice of the anæsthetic agent, (4) the combination of oxygen and carbon dioxide with the anæsthetic agent

PREPARATION OF THE PATIENT

These factors are more or less intimately bound together The patient should be neither starved nor purged Light, liquid diet may be continued in adults to within four hours of the operation, and in children and infants three and two hours It is important to the patient's safety that there should be no solid food in the stomach when he comes to the operation table Adult patients should have a teaspoonful of glucose or a lump of cane sugar three times a day, children may have barley sugar to suck ad lib, and infants frequent sips of sweetened water This should, if possible, be continued for several days prior to operation A simple aperient is best given two days prior to operation so as to ensure an evacuation of the bowel, but nothing more Frequent drinks of water containing 10 to 20 gr of bicarbonate of soda to the ounce increase the patient's blood alkaline reserve

What is the importance of these measures? Normally there is present in the blood a certain percentage of sugar and this blood-sugar is absorbed by the tissues In the normal metabolism of fats we get carbon dioxide, water, and heat, but under certain conditions, one of which is a deficiency of sugar in the blood, fats are broken up into oxybutyric acid and diacetic acid, with acetone as a by-product The chief causes of hypoglycæmia are starvation, vomiting, purging, and sepsis

So that in the interests of the patient we avoid any semblance of starvation, purgation, or enemata, and give plenty of sugar and alkalis both before and after operation Such a régime protects the patient against the tendency to perverted or incomplete metabolism, which may be the main cause of (*a*) post-anæsthetic acidosis, (*b*) post-anæsthetic vomiting and nausea, or (*c*) delays or prevents the return of the vital cells of the body to their normal function

THE PSYCHIC ELEMENT IN THE PATIENT

The psychic effect upon the patient of an impending operation and of losing consciousness in anæsthesia is usually underestimated Dread of the anæsthetic, often too well concealed is the arch-enemy of the anæsthetist and frequently banishes both appetite and sleep It affects adversely the stability of the nervous system, especially the vital medullary centres, and is expressed by palpitation, rapid pulse, pallor, and dilated pupils

Why is it that patients take anæsthetics so well in obstetric practice? Most practitioners use chloroform for this class of work and almost invariably find that the patient takes it well and requires very little The explanation lies in the psychic condition of the patient. In surgery the anxiety of patients arises partly from fear that they will not wake out of the anæsthetic or that the surgeon may commence before they are properly asleep, and partly from dread of what may be found at the operation and whether they will recover This anxiety may have continued for days and progressively increased to a maximum in the anæsthetic room Here the mental condition of the patient is found to be highly detrimental to the safe induction and maintenance of anæsthesia In obstetrics the opposite condition prevails, the patient's mental anxiety arises from fear that she will not get an anæsthetic, it completely passes as soon as the chloroform bottle appears and she is confident, not only that she will waken, but that when she does her troubles will be over

Prophylactic Measures—The anæsthetist should examine the patient before the operation, partly to assure himself of the patient's physical fitness and partly to assure the patient that he is in good form to take the anæsthetic This is sound practice and highly beneficial to the patient, even if a consulting physician has already sanctioned the anæsthetic An optimistic bearing on the part of the anæsthetist, even in the direst circumstances, gives some confidence to the patient Adults receive 7 gr of veronal the night before operation to ensure a good sleep, children have 10 to 15 gr of ammonium bromide by the mouth Morphine is a respiratory depressant and has a tendency to cause post-anæsthetic sickness and nausea, but it is a great boon to the patient, making him drowsy and largely indifferent to his unusual surroundings Except where chloroform is the anæsthetic of choice adults have a hypodermic of 1/6 gr of morphine and 1/100 gr of atropine three-quarters of an hour before operation; children under 12 years should not have morphine but require a hypodermic of atropine three-quarters of an hour before operation In the Children's Hospital babies get 1/200 gr, between 1 and 6 years 1/150 gr, and over 6 years 1/100 gr Atropine is a very valuable adjunct to anæsthesia In the case of ether it controls the secretion of mucus and prevents, water-logging of the respiratory tubes, excessive movement of the abdominal muscles, and the extraordinary muscles of respiration, with cyanosis and noisy inefficient anæsthesia It diminishes the risk of post-anæsthetic respiratory complications Atropine is also useful in chloroform anæsthesia since for any reason a change over to ether may become necessary

Some physiologists and anæsthetists believe that atropine prevents undue excitability of the vagus centre in the medulla, and thus controls the passage through the vagus nerves of reflex stimuli which otherwise might produce inhibition of the heart's action It is not convenient for the practitioner to arrive three-quarters of an hour before operation to give such a hypodermic, but the same dose dissolved in water may be given by the mouth the night before and repeated one and a half hours before operation with equally beneficial results, this can be carried out by the mother

Let me put here a plea for the presence of the practitioner at the operation in hospital or nursing home That is not always easy, but the beneficial effect on the patient's equanimity from the anæsthetic point of view is very important Further, first-hand information is available of the surgical condition of the patient, as well as of the surgical measures taken to remedy it

THE CHOICE OF THE ANÆSTHETIC AGENT.

A proper appreciation of the importance to the patient and to good anæsthesia of a well-considered anæsthetic agent is difficult to acquire The tendency to follow a more or less stereotyped routine in every case—chloroform, ether, or even gas and oxygen—is quite wrong The anæsthetist, whether practitioner or specialist, can arrive at a proper conclusion as to what agent will be most suitable only by making a preliminary visit to the patient and deciding upon the merits of the individual case. This visit makes

Province, the Toro district of the Western Province, and the Bunyora district of the Northern Province Meteorological statistics taken at Entebbe give the following results Average rainfall for the last 30 years, 58 88 inches Average temperature for the last 21 years, maximum, 78 10° F, minimum, 62 70° F Mean daily sunshine, 5 hours 12 minutes

BERMUDA

Mr John Trimingham, Colonial Secretary, in his report for 1925, gives the estimated civil population as 27,711 Including naval personnel and tourists the total would be estimated at 30,157 The number of living births registered was 388 males (117 white and 271 coloured) and 359 females (106 white and 253 coloured) The living birth-rate among the civilian population was 20 9 per 1000, being 16 3 amongst white and 37 1 among the coloured population The total rate, including still-births, was 27 9 per 1000 The number of illegitimate births, including still-births, numbered 151 out of 753 civilian births, equivalent to the rate of 20 1 per cent (white 3 8 coloured 26 6) The death-rate was 7 01 per 1000 for the white and 16 7 for the coloured population The general health of the community was good The number of cases of infectious diseases reported were as follows Scarlet fever, 2, typhoid fever, 28, paratyphoid, 1, measles, 3, chicken-pox, 20, diphtheria, 17, tuberculosis, 3, leprosy, 1, pneumonia, 2, ophthalmia neonatorum, 1, cerebro-spinal meningitis, 1, erysipelas, 3, total 82, as compared with 211 in 1924 and 130 in 1923

The King Edward VII Memorial Hospital, to which no reference has hitherto been made in the annual reports, was opened in July, 1920, the progress of construction work having been made during the years of the war Its management is under the direction of a board of governors, and the direct management is under the direction of the medical superintendent The nursing staff consists of a matron, five sisters, about 12 nurses, and a number of pupil nurses and probationers The number of "free" cases treated in hospital during 1925 was 14 the number of cases exempted by law from payment of hospital fees was five 164 maternity cases were treated (white 151, coloured 13) The general average stay of all patients in the hospital was 19 76 days Ninety-seven X ray examinations were made during the year

A NEW LONDON WEEKLY

WE have received the first two issues of a weekly paper, edited by Dr L Haden Guest, M P The *London Weekly* is published at *6d* by the *Commonwealth Review*, Ltd, whose directors are Lord Apsley (the Editor), Mr L St Clare Grondona, Lieut-Colonel G S Hutchison, and Mr F L McDougall The intention of the paper, as set out by the Editor in the first issue, is to popularise knowledge of empire affairs by taking, not a theoretical interest in political or economical speculation, but a practical interest in helping the people to a happier individual and social position Among the contributors to these first numbers are Mr L S Amery, Secretary of State for Dominion Affairs and the Colonies, Dr Walter Elliot, Parliamentary Under-Secretary for Scotland, and Mr Philip Snowden A valuable feature of the paper will be a financial survey contributed by Mr William Graham, M P, late Financial Secretary to the Treasury The second issue commences a series of articles entitled "Careers in the Overseas Empire," an editorial assurance being given that these articles will be contributed by writers of experience and authority, dealing with particular fields available in the Overseas Empire for British migrants The first article in this series is contributed by Miss Florence Low, who deals with Canada as a field for British teachers

THE DAKOL DAYLIGHT SCREEN

A RECENT article in THE LANCET (1926, ii, 1251) on Light and Typesetting prompts a notice of a translucent colour screen, designed to produce a close approximation to daylight when used in conjunction with metallic filament lamps of the half-watt type The Dakol Daylight Screen consists of a glass screen, clear blue in colour, mounted in contact with a special diffusing screen Owing to the high percentage of light transmitted, the resulting illumination is much stronger than that produced by some other daylight lamps for the same consumption of electrical energy After a few minutes in a room lit with Dakol-screened lights it becomes impossible to distinguish by eye the blue colour of the screen, which now appears perfectly white It was only in comparison with the ordinary yellow unscreened artificial light that the new light now seems blue in shade There is no doubt th[illegible]cial daylight has a great future in industry, actu[illegible] have already shown a smaller percentage of mistakes and breakages in workshops and offices where this system has been installed, and as the advantages become recognised it will be more widely used in clinical and diagnostic work The essential points of such illumination are, first, light of the right colour-distribution and, secondly, a sufficient intensity of that light The essential colour correction has often been obtained by the use of screens which absorb a high proportion of the incident light In such cases the full advantages of artificial daylight have been missed by an attempt to work with too dim a light The Dakol screen is placed on the market by the L H M Engineering Co, Ltd, 17, Dartmouth-street Westminster

THE THERMIX FLAMELESS HEATER

THE principle on which this heater works is that of catalysis The vapour of aviation or No 1 petrol combines with the oxygen of the air in the presence of the active catalytic reagent platinum black The platinum black does not take part in the reaction and hence is not used up in any way The only precaution that is necessary is the use of the spirit specified, as catalytic agents are readily "poisoned" as it is termed in industrial chemistry The catalyst loses its activity, not by chemical action but by the active surface becoming clogged with solid particles and impurities, hence the necessity for the purest spirit There should be many applications for this useful piece of apparatus In particular, when electricity and gas are unavailable, the steady source of heat without fume, smoke or danger of fire, might prove invaluable The safety of the heater is due to the fact that the actual temperature at which the combustion takes place is much lower than that at which petrol vapour ignites in the absence of platinum black Hence, though a plentiful supply of heat is produced, the source is not raised to a high temperature as in an ordinary stove The makers are Frederick Pollard and Co (Bearings), Ltd, Nottingham-road, Leicester

A LINK WITH THE PAST

A CORRESPONDENT sends us the following note from a hospital in Birmingham —

E B came under my observation on the night of Dec 26th, 1926, with a strangulated subumbilical incisional hernia The skin overlying the swelling was necrotic in places, and she vomited several times At operation the sac was found to contain a loop of completely gangrenous intestine, which had perforated The loop was resected and the ends anastomosed Contrary to expectation, she is recovering The interesting feature of this case is that her original operation of ovariotomy was performed on July 3rd, 1888, by Lawson Tait We thus have a follow-up of nearly 40 years

CHRISTMAS POEMS

Dr Herbert A Smith, of 1, Denbigh-road, Ealing, W 13, has sent us a copy of a collection of verse which he is selling at 2*s* 6*d* a copy, the money being forwarded to the reconstruction fund of the Middlesex Hospital The eight-page book is bound like a Christmas card, is prettily illustrated, and contains verses in many varieties of metre all infused with deep religious sentiment

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 1ST, 1927

Notifications—The following cases of infectious disease were notified during the week—Small-pox, 342 (last week 302), scarlet fever, 1017, diphtheria, 961, enteric fever, 31, pneumonia, 1514, puerperal fever, 44, puerperal pyrexia, 122, cerebro-spinal fever, 8, acute poliomyelitis, 14, encephalitis lethargica, 40, dysentery, 4, ophthalmia neonatorum, 114 There was no case of cholera, plague, or typhus fever notified during the week

Deaths—In the aggregate of great towns, including London there was no death from small-pox, 2 (1) from enteric fever, 36 (0) from measles, 2 (2) from scarlet fever, 52 (18) from whooping-cough, 51 (19) from diphtheria 61 (10) from diarrhœa and enteritis under 2 years, and 86 (17) from influenza The figures in parentheses are those for London itself

Tuesday's radio bulletin contained the following item from the Ministry of Health in London "Incidence and mortality of influenza normal for the time of year"

SMALL-POX IN YORKSHIRE—Nearly 10 cases of small-pox have been reported in Sheffield during the present week, and the medical officer of health, Dr F E Wynne, is quoted in the press as saying that he greatly fears that the disease may resume its original virulence, and that several patients are suffering from disfigurement which he fears will be permanent The policy of isolating contacts has hitherto been pursued, but the epidemic has now reached the stage at which it is impossible to remove all the contacts and some will have to be isolated in their own homes Similar anxiety is attributed to Dr J J Huey, medical officer of health for Mexborough, who is said to have described the type of small-pox in that place as becoming more dangerous

1. Ether is highly irritant to the respiratory passages and must be given at first in minute doses so as to get the pharynx, larynx, trachea, and bronchi anæsthetised locally In the first stage of induction with ether the less hurry the more speed, and neglect of this fact may produce cough, respiratory spasm, and cyanosis

2 As soon as the patient is breathing easily and regularly continue a steady drop of ether on the mask To produce surgical anæsthesia the entire volume of respiration must pass through the ether-laden gauze The concentration of ether required for surgical anæsthesia in adult males is from 15 to 18 per cent and its extreme volatility makes this difficult to attain with an open apparatus

3 A clear airway is absolutely essential for ether anæsthesia

Spasm of the masseter muscles may occur during induction and is best anticipated by putting in a gag or a dental prop before commencing The tongue may fall back and partially occlude the airway In such case the artificial airway will not only support the tongue but ensure a clear airway Mucous secretion may collect in the pharynx, larynx and trachea, this is a very disturbing condition both to the surgeon and anæsthetist and should never arise Atropine prevents the stimulation of the secretory glands by ether, and if it has not been given or has not taken effect another dose should be given upon the table, the condition meanwhile being relieved by turning the head to the side so that mucus collects in the dependent cheek Owing to relaxation of muscles the lower jaw may fall back and partially occlude the airway Support with one finger at the angle of the jaw will be necessary.

4 Ether first stimulates the respiratory centre and then depresses it Deep respiratory movements, such as take place in ether anæsthesia during both the induction and maintenance, may cause the loss by expiration of more carbon dioxide than is being produced by the metabolism The normal hormone of the respiratory centre is carbon dioxide If it is blown away by deep respiration a period of apnœa arises and may continue for 30, 60, or 90 seconds It is a rather alarming experience to the inexperienced that the respiration should become shallow and then cease. In such circumstances remove the mask and satisfy yourself that the circulation is normal If normal you may wait with equanimity, since the patient's metabolism will gradually produce sufficient carbon dioxide or other acid from deficiency of oxygen and incomplete metabolism to stimulate the respiratory centre and the respiratory cycle will commence again

The immediate risk is probably ten times greater with chloroform than with ether This does not take account however, of the remote risk with ether

ETHYL CHLORIDE—ETHER ANÆSTHESIA

Open ethyl chloride is a very convenient method of induction It is portable, easy to the patient, rapid in action, and safer than chloroform In adults the same arrangements as for open ether are made Instead of commencing with ether one sprays 3 c cm of ethyl chloride on the mask, and as soon as respiration is active drop ether upon the mask and continue until surgical anæsthesia is complete

In children spray 1 to 1½ c cm of ethyl chloride upon the Yankauer mask and drop ether slowly upon the mask One minute later spray another 1 to 1½ c cm of ethyl chloride upon the mask and continue with ether There is a considerable tendency to respiratory and masseter spasm with ethyl chloride For that reason a dental prop or a gag in the mouth before starting the anæsthesia may be of great assistance Stertorous respiration is the best indication of surgical anæsthesia with ethyl chloride. This sign is less evident with ethyl chloride and ether

It is a very valuable anæsthetic for enucleation of tonsils, circumcision or other minor operation, as well as for major operations

Mixtures of chloroform and ether are not to be recommended because the stimulating action of ether upon the respiration may cause the inhalation of doses of chloroform, the effects of which are very difficult either to anticipate or measure Induction with chloroform and maintenance with ether is a good method of anæsthesia for children In enucleation of tonsils where chloroform is the anæsthetic it is good practice to complete the induction with ether because it is safer to the patient and gives 30 seconds more time for the surgeon's work.

LOCAL INFILTRATION ANALGESIA

This is a method of infiltrating the skin and deeper tissues with a ½ or 1 per cent novocaine solution containing five drops of 1 in 1000 adrenalin to the ounce of novocaine The sensory nerves within the area of infiltration are anæsthetised and do not conduct any painful stimuli to the brain. It is a method which should be of considerable value to the practitioner, since with its aid he may painlessly remove cysts, open abscesses and perform other minor operations in his consulting room or in the patient's home

Novocaine is safe, non-irritating, very reliable, and several ounces of a ½ per cent solution may be infiltrated without in any way prejudicing the healing of the tissues The actual technique of the injection is simple An all metal syringe with various needles is required Commence your infiltration of the skin with a short, sharp needle, raising a wheal three-quarters to one inch in diameter, the only pain the patient should feel is the prick of the skin It is possible to infiltrate the operation area by extensions from the wheal Analgesia is complete in about 10 minutes, and its duration up to 90 minutes The adrenalin added to the novocaine solution is sufficient to render the operation area in some degree hæmostatic

In general anæsthesia, especially gas and oxygen, local infiltration of the operation area with novocaine is very important Under general anæsthesia the patient does not feel pain, but his brain is profoundly affected by the repeated sensory impulses which reach it by cutting, tearing, or stretching of the tissues. These sensory impulses are a considerable factor in the production of surgical shock and without doubt a method of preserving the patient's nerve vitality upon the operation table is to block the sensory nerves in the operation area

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An Address

ON

THE NEED FOR MEDICAL TEACHING ON BIRTH CONTROL.

Delivered before the Manchester Medico-Chirurgical Society on Jan. 12th

BY ARTHUR E GILES, M D, B Sc,
M.R C P LOND, F R C S EDIN,
CONSULTING SURGEON TO THE CHELSEA HOSPITAL FOR WOMEN AND GYNÆCOLOGIST TO THE PRINCE OF WALES'S GENERAL HOSPITAL, TOTTENHAM

AUTHORITATIVE teaching on the subject of birth control, or, to be more precise, conception control, is required for two reasons In the first place such control is necessary in many cases within limits which I shall try to define; and in the second place, the general public already knows a good deal about it, and is anxious to know more Instruction should be given by medical men They are in a position to judge of the necessity for control on medical grounds and its advisability for economic reasons, moreover—and this is equally important—they can appreciate the conditions in which control is harmful medically or inadvisable ethically They can also give information as to the best means to be employed in individual cases

For want of proper teaching the public has had to go to popular books, some of which, written in an a pleasant impression upon the patient. It gives the assurance that every precaution is being taken for his safety and comfort, relieves the mental agony of the approaching ordeal, and provides against patient and anæsthetist being strangers when they meet in the anæsthetic room

There are three principles which govern the choice of an anæsthetic

1 The safety of the patient This includes the immediate risk upon the table and the remote risk from post-anæsthetic complications Gas and oxygen[1] is the safest anæsthetic agent, but its safety is largely dependent upon the type of patient, the surgeon who is to operate, and the experience of the anæsthetist Open or perhalation ether comes next, but where there is any bronchitis or emphysema, or tendency to respiratory spasm, chloroform will not only be easier but safer to the patient

2 It must provide an efficient anæsthesia for the surgical work on hand In enucleation of tonsils, for example, the anæsthesia should continue for the duration of the operation, neither more nor less In circumcision the anæsthesia should be deep enough to avoid reflexes reaching the medullary centres on clamping or cutting the redundant prepuce

3 It ought to have the approval of the surgeon who is to operate Cooperation between the surgeon and the anæsthetist is as essential in the nursing home as in the patient's home and the cottage hospital There are few anæsthetists, whether practitioner or specialist, who can afford in the interests of the patient to be arrogant or quietly ignore the experience of the surgeon as to what anæsthetic is likely to prove most efficient for the patient and the task on hand

The choice having been made, the anæsthetist's duty is to see that his anæsthetic table contains everything he may want in any emergency, to induce and maintain surgical anæsthesia, to keep the airway clear and to watch with much diligence and constancy the effect of the anæsthetic upon the patient It may appear a refinement of anæsthesia to mention the inclusion of a cylinder of oxygen in your armamentarium, but no operating theatre, not even an improvised operating theatre, is complete without oxygen at hand and, one might add, of equal importance, at least to the patient, a cylinder of carbon dioxide

Gas, Oxygen, Carbon Dioxide, Ether Anæsthesia with De-etherisation

The ideal anæsthesia is one which will temporarily inhibit the function of the cortical brain cells and break the sensory reflex arc without affecting the functions of the organs or causing damage to the tissue cells, and whose action ceases with the administration Gas, oxygen, carbon dioxide, ether anæsthesia with local or regional analgesia and de-etherisation is the nearest approach we have to the ideal at present It is almost completely reversible, highly evanescent in action, and leaves few traces of disturbance in the normal functions of the organism Unfortunately, this type of anæsthesia requires an expensive and complicated apparatus, together with a considerable experience of an exacting technique for safe and successful administration

There are three anæsthetic agents well suited to the practitioner who is giving an anæsthetic occasionally, and they have the three-fold merit of (a) portability (b) requiring no complicated apparatus, (c) providing surgical anæsthesia for almost any emergency They are chloroform, ether, and ethyl chloride, with combinations such as chloroform followed by ether or ethyl chloride and ether

Chloroform Anæsthesia

Chloroform is a protoplasmic poison and is, therefore, a potent and dangerous narcotic agent which ought to be used for anæsthesia always with knowledge, caution, and must respect

Several principles are constantly involved in its safe administration

1 Free dilution of the vapour with atmospheric air For this purpose an ordinary linen towel is much better than a mask It should be held over the patient's face as a dome with the edges hanging free, chloroform is then allowed to drop on to the centre of the dome at a rate such as can be easily counted. Theoretically one should begin with 0 1 per cent vapour and steadily increase up to 2 per cent , the increased percentage is got partly by increasing the rate of the drop, but much more by increasing the area over which one is dropping the agent When the induction of anæsthesia is complete, reduce the rate of dropping and maintain anæsthesia by supplying as much as is being lost by expiration This will probably mean that throughout the operation 0 5 to 1 per cent of chloroform will be sufficient During the administration of chloroform the anæsthetist should be calculating in fractions of per cent its effect upon the patient

2 The second principle is a complete absence of intermittency in the administration Intermittency, particularly during the induction, is probably the greatest single factor of danger in chloroform anæsthesia A slow steady drop, gradually increasing the area over which you drop, is continued without a break other than to note the progress of induction until surgical anæsthesia is complete

3. The third principle is a proper appreciation of the fact that the induction is the most dangerous period of the anæsthesia Early in the induction of anæsthesia with chloroform the vagus centre in the medulla becomes extremely sensitive, and any reflexes passing from the operation area tend to cause the passage of stimuli through the vagus nerves to the heart, resulting in inhibition of the heart's action

There are three conditions in which reflex stimuli are especially liable to produce this effect upon the heart (a) during excitement and struggling, (b) interference with the patient during light chloroform anæsthesia, (c) status lymphaticus, or where there is an excess of lymphoid tissue This irritability of the vagus centre passes away when surgical anæsthesia is complete

The earliest sign of overdose with chloroform is shallow respiration due to depression of the respiratory centre and should attract attention at once If noticed in time it will be sufficient to withdraw the anæsthetic and permit free ventilation with air or oxygen

Infants and children take chloroform well They go slowly through the greater part of the induction, then pass rapidly to surgical anæsthesia, and as rapidly into the danger zone Children require very little anæsthetic for the maintenance of surgical anæsthesia and are readily overdosed Babies often scream, and you are safe in dropping chloroform on a towel over the face until the crying ceases and then continue with ether Children are frequently terror stricken and the resulting psychic shock adds very materially to the danger of the anæsthetic Infants and children tend to go to sleep early in the induction of chloroform anæsthesia, and the tidal exchange of air is so small that they only take in enough to keep them asleep The respiration being quiet and regular and the corneal reflex absent, one is liable to conclude that they are in a state of surgical anæsthesia, but a towel-clip or a skin incision will produce a scene which ill-becomes and properly upsets the anæsthetist's dignity If you have any doubt sharply pull up the mentum or push forward the angle of the jaw or pour on some ether, and your doubts will vanish Infants or children showing any evidence of anæmia, or sepsis or shock should not, under any circumstances, be anæsthetised with chloroform

Ether Anæsthesia

Ether may be administered to infants and children upon a linen towel, but a vankauer mask covered with a few layers of gauze is better A layer of cotton-wool with a hole for the mouth and nose should cover the area of the face pressed upon by the mask In adults an Ogston[2] mask is by far the most satisfactory method of producing perhalation ether anæsthesia and it is a drawback, not unattended by risk, for the woman to have to get up out of a warm bed in order to use a douche

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[1] Mackenzie Brit Jour of Anæsth , January, 1926, p 122

[2] Ogston Brit Jour of Anæsthesia, October, 1924, p 76

6 *Surgical Methods*.—The vasa deferentia may be cut and tied in the man, or the Fallopian tubes in the woman. Cases of performance of the operation on the man are very rare: and in the case of women it is hardly justifiable to perform an operation for this purpose alone But when an operation is necessary for some other reason it is a proper and legitimate procedure to divide the tubes at the same time. There are various ways of doing this: the method that I adopt is to divide the tube and overlap the two ends about an inch, tying a ligature round both at each end of the overlapping portion

DRAWBACKS IN PRINCIPLE TO BIRTH CONTROL.

There are drawbacks to birth control on public as well as on personal grounds. A detailed examination of the public grounds would carry me too far into the Malthusian doctrines and I will dwell on one point only—namely the disadvantages to a country that result from a falling birth-rate. It is said on the other side that there is neither work nor food enough for all, and that the proper remedy is to limit the number of future wage-earners and food-consumers My own view is that the fault is due to the conditions of work and not to the numbers and that altered conditions would provide work enough for all the unemployed in the country. If birth control could ensure the elimination only of the unfit, the wasters and the degenerates, something might be said for it. But on the contrary, those who are least likely to breed valuable citizens are also the least likely to take any steps in the matter Restriction is more practised by thoughtful and efficient parents, whose offspring might well be of the greatest service to the community

Then there is the personal side, and here I am not concerned with cases of restrictive methods adopted after several children have been born. But I am deeply concerned with restrictions adopted at the beginning of married life. The immediat eeffect is to foster selfishness and self-indulgence in the married couple and to rob the early married life of much of its proper romance. The later effects are not invariable, but I have met many instances of people who have avoided the possibility of childbearing in the early years and later on, when they have changed their mind and thought that they would like to have children, they have not been able to do so I do not know how this has come about in individual cases. It may be through some change in endocrine activities, due to distortion of the normal sex-act. In some cases it may be due to the method employed, for I have long been convinced that the prolonged use of quinine pessaries may have this effect. However it may be, there is no doubt about the unhappiness and the disappointment, the regrets and mutual recriminations and sometimes even the permanent estrangement and separation that the later years of married life may enfold

Another late result is the physical one. Repeated sex-stimulus in early married life without the physiological rest and outlet provided by pregnancy predisposes to hyperplasia, chronic congestion and the development of uterine fibroids.

DRAWBACKS INHERENT IN CERTAIN METHODS

The least harmful plan is undoubtedly the restriction of intercourse to the so-called safe period Of mechanical means the condom is probably the least objectionable. Coitus interruptus has a bad effect on the woman's health in many cases. I have spoken of the possible effect of quinine pessaries in leading to permanent sterility. Some of the so-called check pessaries may set up an ascending metritis and salpingitis when used by careless and ignorant women.

CONCLUSION

Birth control is a necessity on medical grounds in certain circumstances and it is expedient on economic grounds in a few cases. The medical profession should lay down its indications and point out its limitations. To those who wish to practise it for economic reasons its risks and drawbacks, immediate and remote, should be pointed out: and when it is necessary, the best method to be adopted in each individual case should be explained

SPECIFIC STIMULATION THERAPY AND PROTECTIVE INOCULATION IN TUBERCULOSIS.*

BY GEORG SCHRÖDER, M D.,
MEDICAL DIRECTOR OF THE NEW SANATORIUM, SCHÖMBERG, NEAR WILDBAD, GERMANY.

THIRTY-FIVE years have passed since the discovery of tuberculin by Robert Koch and in this long period many investigators have worked at the problem of specific treatment, without finding—it must be confessed—any firm basis for this difficult department of knowledge. I have myself tested most of the so-called specific remedies for tuberculosis on a large number of patients during the last 30 years without finding any specific that can be absolutely relied upon for treatment or for prophylaxis. At the same time we all know that there are remedies derived from the bacillus which have a specific action upon the foci of disease To these the tuberculous patient is quite remarkably sensitive. They all have the power of promoting the formation of tuberculous tissue

This pronounced sensitiveness of the affected organism towards tuberculin preparations consists in an increased tendency to inflammation. We know now that a number of other substances such as protein bodies, chemotherapeutic remedies, metallic salts arsenic, are able to start distinctly more active inflammatory changes in the tuberculous than in the healthy Here must be included radiotherapy, and to a considerable extent all our general remedies.

And yet we are concerned in these non-specific stimulants with something quite distinct from the specific ones obtained from the bacillus. The latter act in extremely small doses and are able (as already stated) to start the formation of tuberculous tissue. On these two points rest the only certain facts that we know about the specific action of the above-mentioned preparations

Theories of Mode of Action of Tuberculin.

Many theories have been formed to explain the mode of action of tuberculin. They were originally based upon the supposition that it was a true antigen, that the antibodies which we find in the blood of the tuberculous have a direct connexion with the antigens, and that the action of tuberculins must be explained as a form of antigen-antibody formation in the sense of Ehrlich's theory. These notions have all suffered shipwreck. It would take me too far to go into details; but we know now that the tuberculins are not immunising remedies and that they cannot be regarded as true antigens. The theory of Bessau which assumes that the sensitiveness to tuberculin depends on the formation of so-called tuberculocytes through stimulation of the mesenchymatous tissues, is suggestive. According to Bessau, the result is the accelerated formation of stronger tuberculous tissues. Selters's explanation is however, more in accord with the facts as known to-day. According to him tuberculin is an irritant which causes inflammation of tuberculous tissue without being altered or bound up therewith

Feldt and I have proved that the natural disintegration of the focus of disease is accelerated through stimulation by the so-called specifics The toxins arising from the disintegrated tissues and bacteria bring about the general and focal reactions by means of the sympatheticotonic nervous system and the erotic vein, with insufficient knowledge, and with a marked bias, are liable to do a good deal of harm Those who have not had access to books, as well as some who have, have resorted to some so-called birth control clinics staffed by non-medical persons who advise the use of appliances without selection of suitable cases or discrimination as to the means to be employed In these two pictures, of the medical and the popular expositions of the subject, we have an epitome of the use and the abuse of teaching about birth control

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*A paper read at the Joint Meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions, Nov 22nd, 1926

MEDICAL GROUNDS FOR BIRTH CONTROL

I may say that I make use of the term birth control here because it is simple and generally understood Strictly, it would include prevention of birth by the induction of abortion, but this, of course, we are not considering, as we are dealing only with the prevention of conception

1 *Heritable Disease in Either Parent* —Here we have to consider syphilis, tuberculosis, and mental disease Syphilis is, of course, curable, and once cured it ceases to be heritable But as long as there are positive signs in either parent there is no doubt that the begetting of children should not be allowed. Tuberculosis should be regarded in the same way, though it is the tendency to the disease that is inherited rather than the disease itself With mental disease it is a question of degree Obviously, lunatics and imbeciles should not be allowed to have children, but the minor forms of mental instability are often so closely allied to genius that if such people were prevented from having children the loss might outweight the gain

2 *Diseases that make Childbearing Dangerous to the Mother* —In this category we may include some forms of heart disease, tuberculosis, and nephritis Each case must be considered on its merits, but it is a canon of medical practice that the mother's safety has priority over the unborn child, and à fortiori, over the unbegotten child In some cases the restriction need be only temporary and can be removed if the disease concerned clears up

3 *Conditions that would Obstruct Labour* —These include contraction of the pelvis, or the presence of a tumour or other abnormality If the obstruction be removable, as in the case of a tumour, it is right to prevent conception until this has been done , but if it be permanent, as in the case of a contracted pelvis, the patient has the right to choose whether she will take the chance of pregnancy with a view to delivery by Cæsarean section, or whether she shall be exempted from pregnancy by the adoption of preventive methods

4 *Previous Difficulty or Dangerous Deliveries* —When a woman has passed through a difficult or dangerous confinement, I hold that she has the right to say that she will not face the ordeal again, even though the complications may have been of a type unlikely to recur Some women, with an ardent desire for another baby, might be willing to take the risk With others, the prospect of another such experience would entail intense mental suffering and might easily cause a mental breakdown

5 *Childbearing in Excess of a Woman's Strength* —There is no doubt that many women have borne large families with only short intervals between successive confinements, and have appeared to be none the worse for it But with many it is different, and a succession of children close together has left them physical wrecks It is not only permissible, but necessary, for medical men to advise preventive methods in such cases, in order that pregnancies may be both spaced out and reduced in number And if a woman asks for help in such circumstances, I consider that she is entitled to receive it

ECONOMIC GROUNDS FOR BIRTH CONTROL

When we come to consider the economic grounds for birth control, ethical and sociological considerations overshadow the medical, and we find widely divergent positions taken up by thoughtful and conscientious persons The ardent followers of Malthus adduce many reasons why the population should be held in check In my opinion their concentration on abstract generalities places their vision out of focus for attention to the individual human side of the matter, which is at least as important At the other extreme, some religious bodies, such as the Roman Catholic Church denounce birth control in principle and can see no exceptions where it is desirable, save that they will rather unwillingly concede that there may be something to be said on medical grounds My position is intermediate, I recognise that birth control is a contravention of natural law, and that such contravention can seldom be carried out with impunity But facts must be faced, and there are cases where the penalty of compliance with natural law is greater than that of defiance of it But if my position is intermediate, I must frankly confess that it is much nearer to the extreme of prohibition than to that of wide adoption

The plea that a couple cannot afford to have more children is one that I should admit as a permissible reason for birth control This presumes that they have one or more already Moreover, the poor drudge of a working woman whose babies keep on coming, so that childbearing and ceaseless toil make up her whole existence, deserves our pity and our help, and the resources of medicine should be applied to the limitation of her family But I should not admit that it is right for people to begin married life by practising birth control. If they cannot afford to have one child, they cannot afford to get married And if the reason given is that they want to enjoy themselves and have a good time without the responsibilities of parenthood, I should say that the reason is an unworthy one Let such people enjoy themselves and have a good time, and wait to get married until they have acquired enough unselfishness and seriousness of character to accept the normal responsibilities of married life

METHODS ADOPTED

1 *Abstinence* —As a temporary measure this is reasonable, but for adoption during a considerable period it is not practical It asks too much of human nature and opens the door to irregular practices and unhappiness

2 *Restriction of Intercourse to the " Safe Period "*—There is no period that is absolutely safe, but it is generally agreed that the likelihood of conception is least in the latter part of the intermenstrual period This is the best method to be adopted when birth control is desirable but not an absolute necessity It is the least objectionable

3 *Prevention of Entry of Spermatozoa into the Vagina* —One method is by coitus interruptus Generally speaking, this is unfair on the woman, as it is apt to leave her with desire excited but not satisfied It is not to be recommended The other method is the use of the condom When birth control is essential, but for a time only and the possibility of conception at a later date is to be preserved, the condom plan is the best It has been maintained that it is essential for the seminal fluid to come in contact with the vagina in order that the woman may reap the full benefit of the act , but this is not proved and I hold it to be doubtful

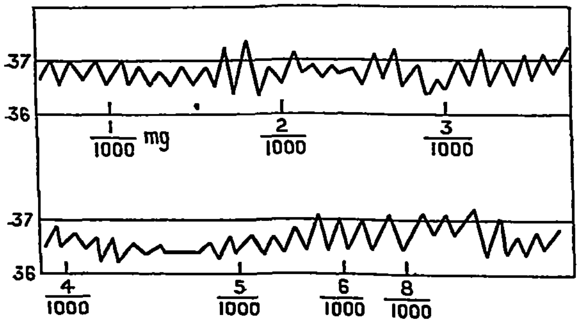
4 *Mechanical Prevention of Entry of Spermatozoa into the Uterus*—For this purpose various pessaries have been devised which are supposed to be introduced by the woman They are all uncertain in action, and their chief virtue is that they are a source of revenue to those who sell them

5 *Chemical Methods of Prevention of Entry of Spermatozoa* —The chief of these is the quinine pessary whose contents, when the pessary melts, kill the spermatozoa This is one of the most dependable methods, and it is free from the objectionable features common to some other plans It is to be recommended when birth control is to be permanent Douching is a method whose action is partly chemical and partly mechanical It is fairly safe, but not absolutely so ,

obtained improvement from these, tested in the various ways

The researches of Deycke and Much on *partial antigens, AFN*, are well known An enormous literature dealing with these remedies exists They have, however, not helped us as much as the old preparations of Koch I speak of several hundred patients who were treated with partial antigens, according to the method of Deycke and Much, and can say from my own experience that this troublesome method gave no better results than the other specifics Naturally we could raise the reactivity of the patient with the partial antigens, the results confirmed the value of allergic tests in prognosis The researches of Deycke and Much were especially valuable for the light thrown on the protective action of fats and lipoids, which, perhaps, has some meaning in regard to tuberculosis We know that the high lipoid value of the blood indicates a favourable, a low one an unfavourable, form of tuberculosis But it is questionable whether the defensive value of fats and lipoids is all that Much would have us believe

Recently we have been especially interested in *tebeprotin* of Tonniessen—a protein derived from tubercle bacilli, consisting of a chemically pure whitish powder entirely soluble in soda solution, and, therefore, permitting of accurate dosage This is an advantage over some other specifics It is less toxic than old tuberculin and causes a milder reaction The initial dose is 1/10,000 mg, or in strong subjects 1/1000 mg, given once a week in very slowly increasing doses up to 5/100 mg We have so far employed it in about 100 cases, and obtained as good results as with B E and S B E The proportion of patients who lost their tubercle bacilli under treatment was a little higher than our average We often had the impression that patients under this remedy who had subfebrile temperatures lost their fever more quickly, and that the foci showed a greater tendency to fibrosis than with other specifics With this remedy and the blood sedimentation test we can obtain useful information concerning the activity of the disease, testing the blood before and after an injection of 1/20–1/40 mg tebeprotin A definite retardation of sedimentation is a sign of active tuberculosis



A case treated with tebeprotin Shows feeble temperature reactions after the higher doses, finally reverting to normal, typical lymphocytosis and an increase in monocytes, the eosinophils remaining unchanged, Initial temperatures before injections max 37°, min 36 5° C Doses increased from 0 001 mg to 0 008 mg

So much for the subcutaneous use of specifics

Other Methods of Administration

Recently there have been attempts to utilise the important skin-resistance to infection By the introduction of stimulants subcutaneously, subepidermally or percutaneously one endeavours to set going processes which may usefully influence the focus and the general health of the patient In this way Klaus Schilling employed his "ertuban," a watery extract of human tubercle bacilli It is given at first in doses of 1/10,000 to 1/1000 mg, carefully increased Sahli has very thoroughly worked out his method of administering tuberculin subepidermally He made use of Beraneck's tuberculin, and began with the weakest concentrations, injecting 0 1 c cm Here, also, the doses are increased very slowly, always under the control of the allergic condition, the blood reaction, and the general health The percutaneous administration of specific stimulants may take the form of *liniments* (Petruschky), of Moro's ectebin, and other tuberculin *ointments* This method is appropriate, I think, in cases which are well suited for specific treatment, but in which the exudative character still predominates The method has been useful, more especially in children Still, we employ it in adults with low allergy, if temperatures become unstable, and the general course of the disease does not yet show a decided tendency to fibrosis of the lesions This percutaneous method of specific treatment is, as far as our experience goes, always milder in its effects than the subcutaneous, although even here there are unexpected exceptions Even these doses may cause mischievous local reactions, so that we begin with very small doses and long intervals

It has often been stated that the tuberculin liniments of Petruschky are not active, but our experience does not confirm this Certainly Moro's "ectebin" is more active, it is a mixture of dead tubercle bacilli in anhydrous lanolin Typical tuberculides result, furnishing immunising centres

In Germany Ponndorf's method is widely adopted This consists in scarification of the skin, followed by rubbing in of concentrated old tuberculin I must oppose this method unconditionally The activity is not controllable, the dosage altogether uncertain I have seen formidable local reactions and mischief to the patient from the method It may possibly be employed in the modified form of Gehrcke, Schmidt and Arneth, who recommend quite small patches and careful dosage, but I cannot find any advantage over the older methods

Yet a few words about the administration of these specifics *by mouth* Koch's preparations do not here concern us, as they are destroyed in the stomach and bowel, and we cannot follow the effect of the disintegration products in the lymph stream Deycke has recently warmly recommended his M T B R (Milchsaure - Tuberkel - Bacillen - Ruckstand) From blood examinations it has been shown that we have here to do with a definitely active therapy There was mostly a reversal of the serum albumin curve after these doses, and according to Meyer-Bisch there was a positive focal reaction (increase of water content of the tissue) We have confirmed these statements in patients and by animal experiments, and have also proved that general and local reactions may follow We would, therefore, urgently advise as great care to be exercised in this as in other methods of specific treatment

Protective Inoculations

We now come to protective inoculations against tuberculosis We have already explained exhaustively that we cannot immunise against tuberculosis with specific preparations According to present knowledge, we must admit that we can only be sure of immunising against infections by means of living virus The ideal would be to produce a focus which did not extend, in this way a certain protection would result This is what v Baumgarten and v Behring attempted in their inoculations of cattle Klimmer, v Ruck, Moller, and others have attempted the same in human subjects Moller and Friedmann worked with living bacilli from cold-blooded creatures Friedmann's method has, on the whole, as you may know, proved itself a failure There is, moreover, some danger of these bacilli becoming converted in warm-blooded subjects into pathogenic forms, from which I believe, they were originally derived Kolle, Schlossberger, Kaufmann and I have shown this in experiments on animals, though Calmette and other deny it (Photographs were shown from guinea-pig organs, showing a typical tuberculosis after the third transplantation with Friedmann's strain) Recently I had an opportunity to excise and examine endocrine organs The collateral zone of inflammation is a protective reaction. The reticulo-endothelial (mesenchymatous) tissues are stimulated When the stimuli are not too strong connective tissue results, which penetrates the tubercle and causes it to undergo fibrosis

Specific remedies are valuable because in suitable cases they can increase these natural reactions of the body when deficient

Allergy

We now come to the meaning of the so-called allergy We understand by this term an extreme sensitiveness of the whole cell-system of the infected organism to the infective agent and its products, as well as to some other irritants The Pirquet reaction is a good example of this allergy, which is a very useful guide to the degree of natural resistance The stronger the allergy, the greater the resistance Whether we can call forth a typical allergy with dead tubercle bacilli or tuberculin in a non-tuberculous body is not yet proven Observations, however, are increasing which prevent us from dismissing this possibility altogether

I need only remind you of the beautiful experiments of Bessau, who injected dead tubercle bacilli intraglandularly, and obtained thereby local sensitiveness to tuberculin which lasted for more than a year; of the experiments of his assistant, Fernbach, who reached the same end by intraperitoneal and intraglandular injections of dead virus; also similar results by the two Americans, Zinssew and Petroff I touch upon this subject here because it has a bearing upon our later consideration of protective antituberculous injections There was, however, always present tuberculous tissue in the above-mentioned experiments

Allergic behaviour and the degree of resistance to the infection run, therefore, to a certain extent, parallel We have seen this in thousands of cases, with increased allergic reaction there went not only improvement of the general health, but also of the local foci, whether the patients were treated with specific or non-specific or only general remedies, which (as already stated) also have a non-specific stimulating action Tuberculins are not immunising remedies Methods of treatment which aim at the reduction or abolition of sensitiveness to these preparations (so-called "positive anergy") are dangerous As a rule, in such cases all the allergic reactions return after a short time, but while they are feeble or absent we often see a decided tendency to metastases This was recently brought into prominence in Hamburger's clinic in the case of tuberculous meningitis of children We find in so-called "positive anergy" that tuberculous foci in the larynx, kidneys, bones, and joints do not heal up All these experiences and observations convince us that the end to aim at is the support and increase of allergy, not its artificial reduction

We need not here distinguish (with Much) between toxin sensitiveness and tuberculosis sensitiveness, this seems to me altogether hypothetical and not sufficiently confirmed experimentally Real anaphylatic reactions are not found in the tuberculous The tuberculin reaction is not to be regarded as an anaphylactic phenomenon

My view of the prognostic value of the allergic test, which the French medical school has long adopted, is finding more and more supporters There are many clinical and experimental observations which show that a strong allergy may be regarded as favourable, and which also prove that in many cases we can increase the reactive power of the infected organism by small doses of a specific stimulant In addition to the ordinary clinical tests of progress I make use of a graduated Pirquet, together with various blood-tests red corpuscle sedimentation tests, complement-deviation test, Arneth's blood count, proportion of lymphocytes, lipase, serum albumin These run parallel to a considerable extent.

Choice of Cases for Specific Treatment

Which cases are suitable for specific therapy, and how do we distinguish them? The clinical anatomical state of the patient is of very great importance in answering this question, since the cases tending to fibrosis are especially suitable. All those in which the exudative character of the disease is marked can only be treated specifically with the greatest caution. Before beginning such treatment the patients should always be kept for some time under careful clinical observation, using all the appropriate tests, although we cannot expect to divide our cases into purely fibrosing and purely exudative forms How could the clinician make such a diagnosis when the pathologist can only decide the anatomical nature of the cases with the help of the microscope? We have also to do with mixed forms in most cases we are called upon to treat Clinical experience, X ray pictures, a careful physical examination of the lungs, and, above all, prolonged clinical observations, can, however, determine the predominant character of a case, and this suffices for our purpose Moreover, the allergic behaviour is, in my opinion, most important in choosing our cases If there is a strong allergic reaction, if the blood count is normal, there is no fever, and the disease is mainly of the fibrosing type, then specific therapy is not necessary; general remedies will suffice. If, however, cases mainly fibrosing only give a feeble allergic reaction, if the blood count shows Arneth's movement to the left, if there is a small proportion of eosinophils and a reduction in the number of lymphocytes, if further there is a tendency to fever, if then we have the picture of a sinking resistance towards the disease, we are called upon to use specific remedies, and to try to raise the resistance. We should repeat the allergic and blood tests from time to time—blood counts, sedimentation, lipase, serum albumin When these show a notable improvement in resistance, we can leave off the specific treatment, if they again become less favourable, specific therapy is again indicated Absolute contraindications are long-standing fever, well-marked disturbances in the circulatory and nervous systems, strong tendency to metastasis, and, above all, a predominant tendency to exudation

A few words are called for concerning tuberculosis in children We all know that there is a well-marked tendency to recovery in the primary stage, so that these cases seldom come for clinical treatment The generalising forms in the secondary stage in children are mainly exudative; they often show a very strong tendency to resolution, and, as a rule, have a high degree of allergy I would strongly advise caution in attempting specific treatment in such cases, and recourse to prolonged general treatment instead

Choice of Remedy

What specific remedies should we employ? As you know, there are many tuberculin preparations from which to choose They differ in strength rather than in quality, and will all give similar results with appropriate dosage Formerly we used Koch's *Old Tuberculin* Many believe that with this remedy they get the best results, because it most easily and most certainly leads to so-called "positive anergy," or "biological cure" This view is untenable in our opinion, as already explained If we employ old tuberculin, we must use the smallest possible doses, beginning, perhaps, with 1/10,000 mg, rising very gradually to 1/100 mg, with intervals of eight to ten days Longer intervals should be left after each dose than is customary, to wait for the fall of the reaction Wright has done a notable service in showing the need of longer intervals between successive doses We can strongly recommend his method from our own experience. The dose is increased until the reactivity of the patient, tested in all the various ways already mentioned, has notably increased Then we should leave off specific therapy

As the old tuberculin seemed too toxic, we tried next the *B E* and the *S B E* We had good results also with these in hundreds of cases suitable for specific therapy We began with 5/1,000,000 mg and rose with intervals of 10 to 14 days to 1/1000 mg, Very seldom did we go beyond these doses, as we

Mitral Stenosis

Case No	Age	Parity	Previous labours	Disease	Pregnancy				Labour				Immediate result
					Symptoms and signs	Heart failure	Cardiac reserve	Duration of in-patient treatment	Period of pregnancy in weeks	Method of delivery	Heart failure	Duration of labour Hours	
1	29	2 para	?	M S	A F	Nil	Good	1 week	33	N F	Nil	—	Satisfactory
2	36	7 para	?	„	A F, œdema lungs	E	Fair	10 weeks, good R D	?40	„	Nil	20	„
3	28	1 para	—	M S and R	A F	E	Fair	3 weeks, good R D	38	„	Nil	—	„
4	28	4 para	1, 2, normal labours 3, cough and bronchitis, 4, premature	M S and R	F, liver enlarged.	P +	Poor	4 weeks good R.D	36	N F	Present +, air-hunger, pulse rate 154	—	Left hosp 10 days before delivery and returned in labour, compensation re established after delivery
5	27	P -gr	—	M S	A F, cyanosis, dyspnœa, albuminuria	P +	Very poor	6 weeks good R D	?40	Cæsarean section (twins living)	Nil	—	Satisfactory
6	24	1 para	Signs of heart failure during pregnancy, and delivery	„	Hæmoptysis, œdema, F	E	Poor	Refused treatment in hosp	—	N F at home	?	—	Died 3 weeks after delivery
7	30	P -gr	—	„	F liver enlarged, albuminuria	P + +	Nil	—	16	Induction of abortion with bougies	—	2	Advanced heart failure on admis, died See (e)
8	24	P gr	—	„	F, generalised anasarca	P +	Poor	3 weeks	36	Induction N F	Present + *, (see below)	37½	Death 3 days after delivery
9	44	6 para	? normal labours	„	F hæmoptysis, anasarca, pleural effusion	P + +	Nil	Patient refused to come into hosp until in extremis	38	N F	Present + +	4	Death 2 days after admis
10	33	3 para	? normal labours	„	F liver enlarged.	P + +	Nil	Nil	27	Undelivered.	—	—	Advanced heart failure on admis died See (f)
11	45	P gr	—	„	F, liver enlarged, cyanosis, air hunger	P + +	Nil	Nil	40	„	—	—	Death 4 hours after entering hosp
12	34	1 para	Abortion at 3½ months	Aortic R double M	A F cough, œdema albuminuria	P +	Very poor	6 weeks, fair R D See (a)	34	Induction and forceps	Present + +	10½	Death second day after delivery
13	35	P -gr	—	Aortic R, M stenosis	F, liver enlarged, orthopnœa	P + −	Nil	Nil	34	Cæsarean section, æther	Marked	Operative delivery	Immediate result satisfactory, died 4 days later
14	29	P gr	—	M.S	F urgent dyspnœa	P +	Very poor	In bed 3 months See (b)	30	Undelivered.	—	—	Died suddenly See (g)
15	35	7 para	—	Double M	F	P +	Poor	7 days, fair response	36	Cæsarean section gas and oxygen.	Slight	Operative delivery	Immediate result satisfactory, died See (h)
16†	29	P gr	—	„	F heart much enlarged orthopnœa	P + +	Nil	Several weeks in bed at home without response See (c)	32	Spontaneous onset of prem labour delivery N F	Marked	2	Died 2 hours after delivery
17	20	1 para	—	M S	F, hæmoptysis, pulmonary œdema	P + +	Very poor	5 months, fair response at first See (d)	39	Medicinal induc of labour, delivery N F	Marked	1	Died 12 hours after delivery
18	36	1 para	—	„	F, general anasarca	P + −	Very poor	7 weeks, temporary response only	38	Undelivered.	—	—	Died suddenly before onset of labour

† Case 16 received quinidine in October, 1922, and the fibrillation temporarily disappeared, but the abnormal rhythm returned in March 1923 and the patient became pregnant two months later

Parity.—P gr = Primigravida *Disease*.—M S & R = Mitral stenosis and regurgitation

Symptoms.—A F = Auricular fibrillation *Heart failure (pregnancy)*.—E. = Early P = Present

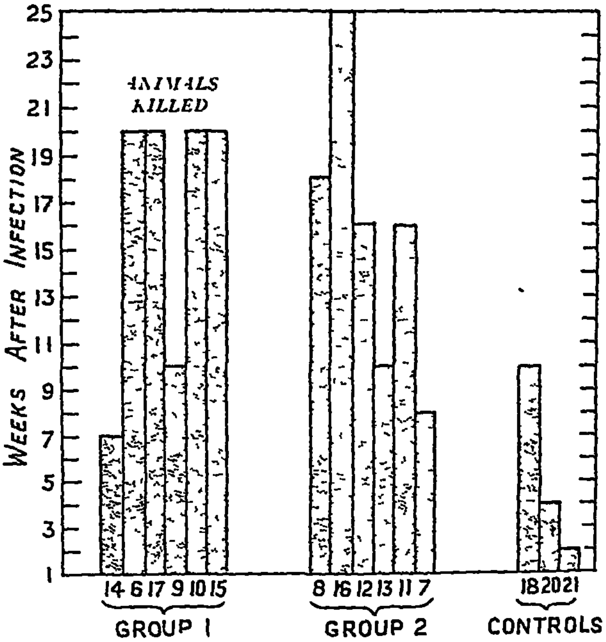
Duration of in patient treatment.—R D = Response to digitalis (*a*) Month later heart again broke down (*b*) In bed three months at home without response, intolerant to digitalis (*c*) Too ill to move to hospital (*d*) Not maintained in later months

Method of delivery.—N F = Natural forces

Heart failure (labour).—*Prolonged labour owing to difficult breech with extended legs

Immediate result.—(*e*) Abortion induced death 22 days after delivery (*f*) Died undelivered two days later (*g*) Died suddenly three days after admission before onset of labour (*h*) Left hospital fairly well, died suddenly three months later a fistula caused by Friedmann's method of treatment The section showed typical tubercles Such a focus naturally has an immunising effect, but is not without its dangers

During the last few years attempts have been made to immunise animals and children against a virulent tuberculous infection, by means of more or less weakened and non-pathogenic virus I refer to Selters's vital tuberculin, Calmette's B C G, strains grown by Arima, Aoyama, and Ohnawa on culture materials containing saponin, to Raw's preparation, in which tubercle bacilli killed by heat are employed, to Shiga's and Langer's vaccines In all these vaccines we have to do with more or less non-virulent bacilli We cannot yet give a final verdict upon these methods There are very serious objections to them, and in any case years must pass before we can be sure of their value



Survival of infected rabbits with and without protective inoculations

Recently I made similar experiments in connexion with my investigations on the influence of splenic extracts on tuberculously infected animals With the help of extracts from lymphocytic organs we can biologically produce vaccines containing entirely non-virulent tubercle bacilli With these vaccines I tried to protect rabbits against subsequent bovine infection Protection followed for some months, and where infection eventually resulted there was a noticeable increase in resistance The above diagram illustrates the duration of life in three groups of rabbits experimented upon The first group consists of animals inoculated and then infected Four were killed, and found to be free from tuberculosis The second group consists of animals inoculated after infection These died of tuberculosis, but survived considerably longer than the controls, and on examination showed a greater tendency to fibrosis The third group (controls) consists of animals infected without any protective inoculation In these was found a tuberculosis spread over the whole of the lungs This was not found in any animal which had had a protective inoculation

These vaccines evidently give a notable protection against following infection. Whether they are capable of starting healing processes in human tuberculosis remains to be proved In a few patients there seemed to be a beneficial influence I cannot say more, as there has been too short a time for observation Still, these experiments point out a way in which active immunisation against tuberculosis may be obtained.

Passive immunisation by means of serum I do not believe to be possible, in spite of the numerous attempts that have been made. All the sera hitherto recommended by Marmorek, Maragliano, Ruppel, Uhlenhuth, and others have led to no practical results

Serum therapy is, in my opinion, in tuberculosis a non-specific stimulant therapy If we wish to employ such non-specific remedies, we can do so more safely with Lipatren from the Behring works

Ambulant Therapy

If we review all the facts concerning specific therapy, it is obviously by no means easy, and needs such a careful observation of indications and so exact a clinical control that it cannot be carried out under ambulant conditions without the greatest difficulty We have always taken the view that ambulant specific treatment is to be avoided We believe, however, that it can be carried out under ambulant conditions if it was previously employed with benefit in a sanatorium or hospital where all the necessary details have been observed In that case the practitioner who is possessed of all the data can continue the treatment with success He must, however, continue to observe all the clinical details and record them, together with the general remedies employed

It is not possible to state the results of specific treatment statistically. The recoveries which I have seen are about the same statistically as those obtained with gold salts alone, or exclusively with general remedies The value of specific therapy can only be estimated in each case separately, and in this way we come across patients who obviously profited by specific therapy in addition to our other remedial measures

THE EFFECT OF PARTURITION ON THE HEART

WITH A REPORT ON EIGHTEEN CASES OF PREGNANCY COMPLICATED WITH AURICULAR FIBRILLATION

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THE normal heart is composed of healthy muscle, has competent valves, and maintains a regular rhythm, and possesses a reserve power which ensures a smooth physiological response to extra, and even extraordinary, effort The effect of diseased processes, whether they be muscular, valvular, or rhythmic, is to reduce the efficiency of the heart by limiting the capacity of this reserve force If the disease is progressive, or the demand for work excessive, then sooner or later the reserve force is so reduced that the heart is unable to meet the demands made upon it.

A pregnant woman with auricular fibrillation has her cardiac reserve power depleted by the following factors or loads (1) the valvular lesion, (2) the altered rhythm, (3) the strain of pregnancy and labour, and apart from this mechanical factor, the frequency of toxæmic states must not be forgotten—conditions in which degenerative changes are commonly found in the musculature and blood-vessels

The association of pregnancy and fibrillation forms a complex that embraces all the commonest and most powerful factors concerned in the production of heart failure The mechanism whereby heart failure is produced by these loads belongs to the province of the cardiologist, but the influence of pregnancy and labour is of peculiar interest and importance to the obstetrician, and requires some amplification

Effect of Parturition on the Normal Heart

Pregnancy—The weight of the child is a mechanical stress that increases as pregnancy advances The growing uterus displaces the abdominal organs, compresses the diaphragm, and impedes the movements labour produce the maximum muscular strain, and that subsequent labours are frequently short and easy, yet repeated pregnancies should be forbidden to all patients who have any heart lesion There are many reasons for this view, but three only need be mentioned here (1) muscular atony and degeneration are the common sequelæ of repeated pregnancy and lactation, even in healthy women, (2) many cardiac lesions are progressive processes—e g, mitral stenosis, (3) recurrent endocarditis may be set up by the pregnant state

This question is one that must be referred to the cardiologist, who may consider that the cardiac efficiency is so little impaired in any individual case that more than one pregnancy may be permitted to the patient In any event, adequate spacing of the children is essential in order that the heart may be given ample time to recover from the strain of one pregnancy before being exposed to the effects of another

(*d*) *Mode of Delivery*—If the cardiac reserve is sufficient to enable the patient to play games and lead an active life when not pregnant—i e, almost perfect—normal delivery at full term may be safely allowed, at the same time, the induction of premature labour and the use of forceps are always useful procedures, as they mean less work for the expelling muscles and, consequently, less strain on the heart For cases in which the cardiac reserve is seriously reduced Cæsarean section is probably the least risky mode of delivery This operation has many advantages

1 The strain entailed by the anæsthetic is no greater (sometimes less) than the cardiac work demanded by the uterine contractions and the voluntary efforts of the accessory muscles, even when assisted by forceps traction

2 It is the most rapid method

3 It can be carried out deliberately at a chosen moment and under the most favourable conditions

4 The amount of blood lost can be regulated and the puerperal plethora prevented

5 It offers a certain method of sterilisation by excision of a portion of both Fallopian tubes, which conserves the regular menstrual loss (clearly an advantage to the cardiac subject)—a method which compares most favourably with the uncertainty of contraceptives and the disadvantages of the amenorrhœa induced by X rays

Cæsarean section is specially indicated when the patient is a primipara or where there is some additional obstetrical complication, such as a contracted pelvis or an abnormal presentation I have had personal experience of five operations for severe heart disease with good immediate recoveries, and am convinced that this method of delivery is the method of choice for many cases

Conclusions.

The results tabulated in this paper show that heart failure is a dangerous complication in parturition and suggest that the rational basis for the treatment of heart disease and pregnancy depends upon three important facts 1 Pregnancy and labour absorb the reserve power of the heart, and the amount of reserve force required increases as term approaches 2 A woman with organic heart disease who becomes pregnant starts with a depleted cardiac reserve, which may or may not be sufficient for the inevitably increasing demands of the pregnant state 3 Labour in the presence of severe heart failure is either immediately fatal, or greatly hastens the fatal termination of the case

The principles of treatment may be summarised as follows 1 A woman with serious depletion of the cardiac reserve should not become pregnant 2 If conception occurs in the presence of seriously depleted reserve the pregnancy ought to be terminated before the onset of heart failure 3 The induction of labour in the presence of heart failure is unjustifiable 4 Artificial termination of the pregnancy should be carried out when cardiac compensation has been re-established—and for many cases Cæsarean section is the best method of delivery

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DEATHS UNDER ANÆSTHETICS.

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THE reports of the Registrar-General on deaths under anæsthetics for the last few years contain statistics and remarks of considerable interest and deserve careful study The following table is adapted from these reports, the statistics contained in it date from 1911, because a modified system of registration came into operation on that year —

England and Wales Deaths Under or Connected with the Administration of Anæsthetics

In some of the death certificates the nature of the anæsthetic is not stated The statistics are therefore grouped as "stated" and "unstated"

Year	Number of deaths						Anæsthetic stated, per cent of total	Per cent of total stated			
	Total	Nature of anæsthetic		Chloroform		No chloroform		Chloroform (alone)	Chloroform in combination	Ether *	Other anæsthetics
		Stated	Unstated	Alone	In combination						
1911	276	214	62	142	46	26	78	66	22	9	3
1912	283	181	102	117	31	33	64	65	17	13	5
1913	296	185	111	110	33	42	63	59	18	14	9
1914	300	193	107	110	36	47	64	57	19	18	6
1915	261	171	90	102	39	30	66	60	23	15	2
1916	306	200	106	112	52	36	65	56	26	14	4
1917	280	196	84	106	59	31	70	54	30	11	5
1918	279	188	91	81	61	46	67	43	32	18	7
1919	302	232	70	96	74	62	77	41	32	21	6
1920	366	282	84	96	95	91	77	34	34	26	6
1921	337	264	73	82	87	95	78	31	33	27	9
1922	336	260	76	63	93	104	77	24	36	30	10
1923	446	392	54	87	148	157	88	22	37	32	9

* Including "ethanasol" and "gas and ether"

Increase in Total Number of Deaths

The yearly number of these deaths increased suddenly in 1920 to 366, and this increase has been sustained In 1923 there was a great increase to 446[1] In explanation of this increase the report for 1923 suggests that there may be included in recent years an increasing number of deaths not actually connected with the anæsthetics, because the certification of deaths is steadily becoming more detailed I rather doubt if this slowly acting cause could account for the sudden rises noted, and further there exists a well-recognised and growing tendency to omit the mention of the administration of an anæsthetic in death certificates whenever possible I do not think that this argument can be admitted in relation to the registration of anæsthetics

We do, however, have to take into consideration the yearly increase in the number of operations during the period under consideration This increase is computed at 13 per cent from the theatre statistics of a large general hospital in London It must also be noted that deaths from delayed anæsthetic poisoning and acidosis are first returned as such in the year 1919, possibly, but not certainly, these help to swell the total These cases would not account for more than a 5 per cent increase at a liberal computation

The foregoing considerations barely account for the 22 per cent rise in the number of deaths in the period 1911–22, and are totally inadequate to account for the 62 per cent rise in 1923 I think, therefore, we must conclude that up to the present moment little or nothing has been effected in the progress of years, either through the medium of new knowledge or new methods, in the way of reducing the general liability to death under anæsthetics

Chloroform—In the earliest years of this century deaths under chloroform constituted over 80 per cent of the lower lobes of the lungs; and although the subcostal angle is opened out, the lower ribs expanded, and the apical respiratory excursion shows enhanced movement as compensatory phenomena, yet, in spite of these adjustments, the expansion of the lungs is diminished This applies to all pregnant women in some degree in the second half of pregnancy, but especially to primiparæ and to pregnancies complicated by hydramnios and twins, where the physiological tumour is unduly big The effect of this pressure is shown by shortness of breath on exertion, and is demonstrated by the presence of crepitations at the pulmonary bases, which disappear in healthy women after a few deep breaths have been taken The heart itself is dislocated upwards by the uterine tumour, which presses chiefly on the right ventricle

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[1] The report for 1924 has now been published The total number of deaths in that year was 429

The circulatory changes include a definite blood plethora, which is a physiological response to the increasing demands of the rapidly growing maternal and fœtal tissues New vessels comprising the placental circulation increase the work of the heart by interposing an additional vascular field, whilst the pressure effects described above further increase the peripheral resistance by obstructing the venous return The normal heart meets these demands by calling upon its reserve force, and the patient may be unaware of any limitation of cardiac efficiency—but some encroachment on reserve is always made, and the amount increases throughout pregnancy

Labour—The effects of labour are simply those of muscular effort which always imposes a strain on the heart and calls on the cardiac reserve The strain is slight in easy normal deliveries, but may be very severe when labour is prolonged or delivery difficult

Puerperium—In all cases the contractions of the puerperal uterus empty and occlude the vessels of the placental site, and thereby inject an additional amount of blood into the maternal circulation, unless post-partum hæmorrhage occurs or the patient is deliberately bled (to prevent plethora)

Effect on the Abnormal Heart

If the demands of normal pregnancy and labour inevitably call upon the reserve power of the heart, it is clear that the chief issue in any case of pregnancy with heart disease must depend upon the amount of reserve force left in the damaged organ If this is considerable, then the strain of parturition may be easily overcome, if it is small, the outlook is serious, whilst the combination of pregnancy with actual heart failure—i e, complete absence of reserve force—is always highly dangerous That such is the case is strongly supported by the fact that out of 18 patients with auricular fibrillation in pregnancy whom I have observed, 13 died either before, during, or soon after delivery. All of these patients were suffering from heart failure and mitral stenosis, with an added aortic lesion in three cases It should be noticed that the liaison of mitral stenosis and pregnancy is peculiarly apt to set up heart failure, because obstruction in the pulmonary circuit is produced by the valvular defect and also by the selective pressure effects of the pregnant uterus It is, therefore, not surprising to find that the association of these two factors greatly enhances the action of each and exerts the most unfavourable and damaging pressure on the right side of the heart

The accompanying table gives an analysis of the salient features of these 18 patients so arranged as to show the natural history of fibrillation during pregnancy, labour, and the puerperium, with the treatment, the method of delivery, and result of each case It brings forward ample clinical proof of the truly malignant influence of parturition on the failing heart, and shows that the conduct of such cases requires the most careful consideration of both cardiologist and obstetrician

The immediate treatment of the fibrillating or failing heart by rest and drugs of the digitalis group is well known and easily carried out, but the cardiologist has a much more difficult task to perform. The immediate response may be good, but it does not necessarily throw any light on the ultimate result, which depends essentially on the quality of the heart muscle and the amount of reserve power left in the damaged organ The cardiologist alone can determine—perhaps it would be more accurate to say estimate—this unknown quantity, indeed, only the physician who has special facilities for the study of the effect of pregnancy and labour on heart disease can realise the difficulty of prognosis and be really helpful to the obstetrician who is faced with the grave responsibility of the delivery of the patient Too much emphasis cannot be laid on the fact that the injurious effects of pregnancy are progressive and cumulative—insignificant, perhaps, in the early months or so long as the cardiac reserve holds out, but increasing, often rapidly, as term approaches and culminating in the supreme strain of labour The cardiologist is thus confronted with a double problem he must first estimate what is left of the cardiac reserve after allowing for the loads imposed by the valvular lesion and the rhythmic and other pathological changes that may be present, and he must then decide whether the progressive and cumulative demands of labour and the puerperium will, or will not, absorb all that is left of this reserve The results published in the present paper demonstrate that a heart without reserve power is unable successfully to withstand the strain of parturition, and that the conduct and prognosis of all cases of heart disease and pregnancy are vitally dependant upon the presence or absence of heart failure

Treatment of Heart Disease and Pregnancy

(*a*) *Without Heart Failure*—After full investigation of the heart and full allowance for the various cardiac loads, the pregnancy may be permitted to continue so long as the cardiologist estimates the reserve as satisfactory and the patient consents to remain under observation and supervision If, at any time, the heart begins to show signs of diminishing and defective reserve, the pregnancy must be terminated before actual heart failure has supervened.

(*b*) *With Heart Failure*—Unfortunately, a patient may become pregnant when her heart is imperfectly compensated, or she may develop heart failure before seeking advice, or even when under treatment Under these circumstances the obstetrician is often advised to terminate the pregnancy forthwith This, however, in my opinion is dangerous advice, because the combination of labour and heart failure is incompatible with the safety of the patient, and there can be no valid reason for submitting an already overburdened heart to an additional strain The spontaneous onset of labour may be unavoidable, but the deliberate induction of labour is certainly unjustifiable when heart failure is present The same principle applies to the early months of pregnancy, although the application is somewhat different, heart failure at this stage cannot be primarily due to the changes produced by conception because the circulatory and pressure effects are insignificant until the fifth or sixth months of gestation Heart failure in early pregnancy is, therefore, very much less the result of the pregnancy itself than of other intrinsic causal factors, and although the uterus may possibly be emptied without disaster, this proceeding is not likely to have any immediately favourable effect on the failing heart, and is not worth the risk it undoubtedly entails

On the contrary, every effort must be made to restore the compensation of the heart before the termination of the pregnancy is decided upon, but in view of the inevitability of the spontaneous onset of labour sooner or later, the importance of delivering the patient at the first favourable opportunity needs emphasising In severe cases this moment has arrived when the patient is reported by the cardiologist to be in a condition to withstand the strain of Cæsarean section

(*c*) *Control of Repeated Pregnancies*—Although it may be fairly advanced that the first pregnancy and functionless. Treatment has consisted in the exhibition of iodine in many forms, in massage, and exercises. The head at present can be bent laterally about 5 degrees and turned similarly. All the spine can be moved very slightly indeed, even with great and prolonged exertion on the part of the patient but the knees can be flexed to 90 degrees—i.e., the patient can kneel. The temperature, pulse, and respiration have throughout remained normal.

Spondylitis deformans and its varieties have several synonyms—spondylose rhizomelique, von Bechterew's disease and Marie-Strümpell's disease. It can be divided[1] into two main types, (*a*) diffuse osteo-arthritis of the spine, and (*b*) diffuse ankylosing arthropathy. The former is a comparatively slight disease, but the latter more serious. It occurs between the ages of 20 and 40 years and affects the intervertebral discs thus producing ankylosis. New bone formation often occurs in the anterior common ligament. In Marie-Strümpell's disease the lumbar spine is first affected and in von Bechterew's[2] the cervical, whilst in the spondylose rhizomelique of Marie the spine is affected with the hip- and shoulder-joints. In any group, if ankylosis precedes the destruction of the discs, "poker-back" is produced, but where the reverse is the case the "aged-rustic-back." In the 120 cases discussed by McCrae[3] 60 involved the spine alone and 60 the peripheral joints also. 80 per cent of the cases were in males. Jones and Lovett[4] discuss the importance of gonorrhœa in the ætiology.

The first case of *myositis ossificans* was described by Guy Patin in 1692 and the second by Freke in 1740.[5] The disease is subdivided into two distinct groups, (*a*) traumatica with local changes due to the tearing away of osteogenetic tissue and (*b*) progressiva. This is frequently described as congenital, and Burton-Fanning has reported an hereditary case.[6] Of Lorenz's 45 cases 38 occurred before the fifteenth year and 11 in the first year of life.

The sex incidence shows that males are affected four or five times more frequently than females, and the race incidence that the great majority of cases occur among the Anglo-Germanic peoples. Munchmeyer first described the pathology in 1869, but concerning this there appears to be no general agreement at the present time, some authorities regarding the condition as a neoplastic occurrence, others as an embryonic aberration, and others as due to chronic inflammation. They are agreed, however, that in all, or almost all, of the general cases microdactylia occurs in the hands or feet, especially the big toes, "due to suppression of the proximal phalanx or stunted first and second phalanges." Less often there is a similar malformation of the thumbs.[8] In 1918 Rosenstirn collected and analysed all the published cases, 120 in all.[9] In only one case can it be proved that microdactylia was absent.[10] Burgerhout carried out extensive researches into the metabolism of patients with the disease, but could find no definite abnormality.[11] In his conclusions Rosenstirn suggests the renaming of the general disease as fibro-cellulitis ossificans progressiva, as it is in the fibrous tissue that the earliest changes occur. He is satisfied that in M. ossificans traumatica the ossification first takes place in the connective tissue surrounding the extravasated blood, that there is no diminution in the Ca excretion nor other evidence of Ca retention. In the case now reported it is not considered clear to which group the patient belongs.

I am indebted to Dr. J. Murray Bligh, senior physician of the David Lewis Northern Hospital, Liverpool, for permission to publish these notes and to Dr. W. Oram for his assistance with the radiography.

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of the total number The fall to 22 per cent has no doubt been largely conditioned by the substitution of chloroform and ether mixtures, and sequences of these, for pure chloroform, the tendency in later years being to avoid the use of pure chloroform The possibility is not excluded that the mortality-rate from the use of pure chloroform may be diminishing, but on this point there is no definite evidence available

Chloroform in Combination —Before 1911 the average percentage of deaths under this heading was 7 per cent The rise is evidently correlated with the increased employment of chloroform in mixtures, and Hewitt and Blomfield's[2] paper, published in 1909, stands out as a boundary mark in this connexion At the present time chloroform in combination accounts for more deaths than any other form of anæsthetic

An analysis of the deaths under this heading may be of interest In 1923 out of 144 deaths recorded of this nature, nine occurred under a chloroform to ether sequence 11 under a C E or A C E mixture to ether sequence, and the remaining 124 under C E mixtures of varying proportions There were none recorded under an ether to chloroform sequence Up to 1917 the combined " chloroform " and " chloroform in combination " percentages remained fairly constant, the average being 83 per cent of the total, but thereafter these combined percentages gradually fell away to 59 per cent It might, therefore be considered that combinations and sequences are now tending in some measure to increased safety I do not think that this would be a correct interpretation, the deficiency balance is transferred mainly to the heading " deaths under ether," and the following considerations bear upon this point

Ether —In 1911 the percentage of deaths under ether was 9 per cent, and the average for previous years was somewhat lower. In 1923 it had risen to 32 per cent In my student days, about 1890, ether administered by means of the Clover's inhaler was regarded as a practically safe anæsthetic; the few deaths that occurred under its influence were mainly the result of regurgitation of fluid in intestinal obstruction or of other unavoidable accidents With the advent of the extended employment of the " open ether " methods it has become, according to these statistics, an agent of remarkable lethal potentiality In 1923 no less than 123 deaths were recorded from the use of pure ether How can we account for this ?

I have examined the records of these 123 cases, they were cases such as would occur in the ordinary routine of hospital operations, many being trivial, it follows that an undue proportion of very serious operations was not a conditioning factor That there have been incidents of sudden cardiac syncope under the administration of pure ether can hardly be doubted, their explanation is obscure, and their recorded occurrence has been exceedingly rare It is not possible to believe that such incidents can have multiplied to an alarming degree in recent years

There appears to me to be only one acceptable interpretation of the rise in the number of deaths under ether, and that is that the death certificates have been incompletely filled in Owing to a certain element of delay in the induction of anæsthesia by ether when administered by the " open " method, it is a very general practice to commence the induction with chloroform or C E mixture and then to change to pure ether, such a routine administration is liable to be returned as one of " open ether " or " ether," and no mention made of the preceding, and possibly brief, administration of chloroform

In 1923 there were only 20 deaths recorded under a chloroform or C E to ether sequence, and 123 under pure ether Having regard to the prevalence of the sequence method, these figures lend strong support to the theory that the returns are erroneously rendered There can be little doubt that a large proportion of these " ether " deaths should be transferred to the category of deaths under " chloroform in combination "

Conclusion

It is, I believe, commonly considered that chloroform is rendered " safe " by diluting it with ether, and that a small amount of chloroform at the commencement of an administration of ether is of no consideration In both of these circumstances chloroform tends to become, in my view, unsafe for general routine purposes At least the reports of the Registrar-General serve to dispel the idea that chloroform is safe when employed under such conditions The pros and cons of this matter might, I am aware, be discussed at considerable length, but I think it better to leave the foregoing record of facts and brief comments to the consideration of those interested

I have to express my thanks to the Registrar-General for access to statistical material in his office

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A CASE OF
SPONDYLITIS DEFORMANS WITH MYOSITIS OSSIFICANS

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THE interest in this case appears to be (1) the difficulty of diagnosis in the earlier stages, (2) the extreme rarity of the concomitance of two in themselves rare diseases, and (3) the perfect symmetry of the ossifacient changes

A B, a seaman aged 27 years, was first seen by Dr J Murray Bligh on Oct 26th, 1920, suffering from pain and stiffness in the back of the neck, and pain on pressure over the ribs His mother was English and his father Italian by birth, although his (the father's) father was a Jugo-Slav who had married an Italian wife There was no history of any family abnormality of any kind or of dystocia when the patient was born He could recall no accident or undue strain prior to the onset of symptoms, but gave a history of " rheumatic pains " flitting from joint to joint in 1918 and 1919 He was much exposed to the weather at sea the following winter (1919–20), when he found it painful to move the cervical spine and to jump from one level to another, as this caused jarring in the occipital region The pain was dispelled by aspirin and any liniment At that time an X ray examination of the neck proved negative Six months before the first examination, that is, in May, 1920, he had contracted gonorrhœa in France, so that the provisional diagnosis of gonococcal arthritis was made. The patient had great pain in the left temporal, occipital, and clavicular regions in 1921 The gonorrhœa was treated in America, and urethral smears were negative in 1922 (Liverpool and Philadelphia)

Condition on Admission —On July 24th, 1925, the patient was admitted to hospital after getting gradually worse His head was held facing half-right, there was complete " poker-back," and an inability to sit down Crutches had to be used for locomotion and standing, and in order to lie on a bed from the standing position the patient had purposely to overbalance The shoulders, elbows, wrists, and hand-joints were normal, but the hips were immobilised and the knees could not be flexed more than 60 degrees from the straight position The ankle- and foot-joints were normal The chest expansion was only from 30¾ in to 31¼ in The blood pressure was 145/120, and the Wassermann reaction was negative Radiograms taken about this time show apparent fusion of the articular processes in the cervical and other regions of the spine with some ossification in the cervical portion of the anterior common ligament, an absence of bone changes at the shoulder-joints (the hip-joints cannot be clearly seen), and perfectly symmetrical myositis ossificans of the glutei maximi (well shown on the accompanying radiogram). No other groups of muscles were similarly affected, and the hands and feet were normal Urethral smears were negative for gonococci, an injection of 2½ millions gonococci produced neither local nor general reaction, and the gonorrhœal test was negative

The blood calcium was only 9 3 mg per 100 c cm It was considered inadvisable to excise the ossified parts in view of the important structures in the gluteal regions, and the possibility that from long fixation the hip-joints were marked in all cases suffering from dehydration The clinical picture was that of an acute dyspepsia in the majority of cases

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[2] A Report on the Routine Use of the Open Method of a Mixture of Chloroform and Ether By F W Hewitt and J Blomfield, THE LANCET, 1909, ii, 10

Temperature—Some cases had no fever, whilst in others the temperature varied from 100° to 102° F, and sometimes it rose to 104°

Stools—These were usually green, offensive, and very watery, in a few cases small spots of blood were seen mixed with mucus The number of stools varied between four and ten a day The skin remained elastic in all the cases that I saw There were no cases with symptoms of acidosis The stage of intoxication was reached on the third or fourth day in the few instances where I was asked to see the patient Fortunately they did not prove fatal In these cases the commencement of treatment had been delayed

Treatment

Two or three meetings were held at which I explained the plan of treatment to the health visitors, district nurses, and superintendents of infant welfare centres, also the superintendent of St Mary Abbot's Hospital, Dr Remington Hobbs The method of treatment is very similar in outline to the one suggested by Dr Donald Paterson in a lecture he gave in 1923 It consists in absolute starvation for at least 24 hours, and, when the vomiting had subsided, normal saline half the usual strength—namely, half a teaspoonful of salt to the pint of water—was to be given to the child in bottlesful cold, and the child allowed to drink as much as he wanted Some children took over two pints a day One teaspoonful of castor oil was to be given when the vomiting had subsided, and this was the only drug administered At the same time the intestine was to be washed out with saline, and this was to be continued once a day while the diarrhœa lasted The next day the child must be given food which it can digest In this condition any food having a high protein and a low fat content is suitable, such as skimmed dry milk, protein milk, or malted milk. On the whole I found that malted milk was better tolerated than skimmed milk during the acute stage, so I advised the nurses to take a bottle of malted milk next day and to tell the mothers to give two teaspoonfuls of malted milk in 2 oz of water every three hours in cases where the infant was under 3 months, when over 3 months 3 oz of the food was to be given, and in cases where this amount was tolerated and the child not satisfied the quantity could be increased a teaspoonful a day more of the malted milk with an ounce of water There were very few instances where the food was vomited Three teaspoonfuls of malted milk contain about 45 calories, so that an infant would receive, if fed three-hourly, 270 calories per diem Windows and doors were to be kept open during the hot weather Light clothing only to be put on the child Tepid sponging was not advised because it would cause unnecessary movement

Results of Treatment

I got the best results when malted milk was given for at least five days or until symptoms of acute dyspepsia had subsided On no account should the food-supply be diminished, provided there is no vomiting, even in cases where the diarrhœa continues I would even go so far as to say that the diarrhœa by itself was of little account provided the child was improving and taking its food well and having plenty of water between the feeds In most cases the diarrhœa gradually subsided and the motions became less offensive, provided a rectal wash-out was done daily The effect of the saline by the mouth in reducing the shock and collapse was surprising The eyes became less sunken, and the abdomen returned to its normal shape in about two days If the diarrhœa continued after about ten days I gave some bismuth No opium or alcohol was used Cases of high temperature did well on this treatment No drugs were given to reduce it

Feeding

The return to normal feeding was the real difficulty It is impossible to give a detailed description of the various methods employed in individual cases, but I was greatly struck by the desire of the mothers themselves to carry out the instruction which they received Any plan for adoption in the home must be of the simplest description, or else it is sure to fail.

I gave instructions that in all cases where the child was doing well, and had been on malted milk for a week, ten drops of cow's milk should be added to the malted milk in each feed, if no symptoms of indigestion occurred, the next day 20 drops were to be given, and the day after one teaspoonful in each feed If all went well up to this point a teaspoonful more of cow's milk was added every day until as much as 1 oz of cow's milk was given At this stage the malted milk was reduced one teaspoonful at a time for every ounce of milk added Eventually we got to a diluted milk mixture with half a teaspoonful of sugar, and, lastly, cod-liver oil in one drop doses and the effect carefully watched, if it caused vomiting it has to be omitted for a few days and then tried again, the amount of cod-liver oil never to exceed three drops in each feed The difficulty in digesting fat is peculiar to these cases This régime can be carried out by the mother with the nurse's supervision In cases of difficulty I was asked to see the patient

It is interesting to note that even in the case of breast-fed infants it is necessary, after 24 hours' starvation and salt water, to give malted milk during the first three days The mother during this period must be encouraged to massage her breast so as to keep the secretion active After the three days, or when acute symptoms have subsided, the child can again be fed on breast milk We had difficulty in some cases to persuade the mothers to resume breast-feeding Some children could not digest ordinary cow's milk, but did well on dry milk mixtures The malted milk was supplied free by the council as a temporary measure under medical supervision

Prognosis

What influences the prognosis more than anything is the time that elapses between the onset of symptoms and the commencement of treatment If the treatment is delayed beyond 24 hours the prognosis is far more serious, not only as regards the life of the child, but also the amount of injury done to the digestive system

Inspection after Treatment

I visited the cases who had received treatment, after the summer was over in each year, and the majority were doing well A few had been admitted to hospitals, and these were usually the under-weight infants Some had done much better since the attack, with the resulting supervision of their diet.

I am indebted to Dr Fenton for the following figures The number of deaths in infants under the age of 1 year attributable to zymotic enteritis in the borough during the last five years —

1921	77 deaths	1924 .	18 deaths
1922	22 ,,	1925	22 ,,
1923	42 ,,		

Number of notifications of zymotic enteritis since July 1st, 1924, were 245 In 1924 there were 40 In 1925 there were 122 In 1926, 83 The death-rate in 1926 up to Sept 30th, amongst 83 notified cases of zymotic enteritis was only six The death-rate in 1926 from all causes of enteritis was 28 up to Sept 30th

During the last three years the number of cases attended by the District Nursing Association of Kensington was 187 Among these 187 cases there were only two deaths I only sent one case into hospital during the three years The last time the disease showed itself in epidemic form was 1921 Since then there have been no epidemics, but it is encouraging to see that the death-rate from zymotic enteritis has been so appreciably diminished during the last year The last two summers have certainly been warmer than 1924, so that I think the scheme has been tested The educational influence of the council's scheme is beginning to have a marked effect on the population of North Kensington, because they see the excellent results of early treatment, and they

THE PREVENTIVE TREATMENT OF SUMMER DIARRHŒA

ROUTINE MEASURES IN THE HOME

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MY object in bringing this subject before the notice of the profession during the winter months is to allow time for the proper organisation of preventive measures before the hot weather commences. It is essential for the success of the treatment that an adequate scheme should be in existence at any rate before June.

The infant welfare movement has, no doubt, done a great work in educating the public and also the medical profession in the proper feeding and general hygiene of infancy and early childhood, but much remains to be done amongst those who do not avail themselves of the advice which can be obtained at these centres. Gastro-enteritis, zymotic enteritis, or whatever name we like to give the condition, still claims too high a death-rate between June and September during the first two years of life. The disease chiefly affects children living in large towns. Amongst those who recover we must not forget the "injury-rate" that occurs in many instances and which interferes with growth and nutrition for many months afterwards.

The hospital authorities are all agreed that the cases are sent to them too late and that treatment should be begun much earlier. The bacteriologist has failed to isolate any specific micro-organism after many years' patient search. He tells us that there is an enormous increase of organism that normally inhabit the bowel, and that the child dies of an infection from the bowel. The pathologist can usually find nothing noteworthy except fatty degeneration of the liver, the intestines which have been subjected to very severe treatment usually show no marked signs of disease.

The clinician, therefore, must depend on himself entirely, he cannot expect any practical suggestions from the laboratory expert. The clinician must, therefore, concentrate on the child rather than on the disease, he must devise some method by which the body can quickly recover itself from the first onslaught of the enemy, and then give some form of nourishment which should be the least irritating and that should, at the same time, contain sufficient nourishment to satisfy the caloric requirements of the child after recovering from the initial shock. This is, roughly, the problem before us. It was felt in Kensington that something more should be done to diminish the number of moribund cases which were being sent to the hospital, and also to lessen the injury to the digestive system after the acute symptoms had subsided. I was asked to devise a scheme for treatment in the home which could be easily carried out and which would be helpful to the general practitioner in the neighbourhood.

Ætiology

The literature on this subject is vast, and anyone wishing to become acquainted with it could not do better than consult the bibliography at the end of Dr Donald Paterson and Dr D Nabarro's paper on epidemic diarrhœa which appeared in THE LANCET of 1922, ii, 325. The theories of Czerny and Finkelstein at one time occupied a prominent place in the causation of infective diarrhœa. They thought that the chemical action of food and its decomposition products were a sufficient cause for summer diarrhœa, rather than the action of bacteria. Theories based on the chemical action of food products have given place to the infective theory again, and in 1920 Dr Bloch, of Copenhagen, pointed out that the clinical picture, pathological findings, and the epidemicity are the same whether we find pathogenic organisms or not. His classification is as follows (1) acute dyspepsia due to food indiscretion, (2) acute gastro-enteritis in healthy children, (3) acute gastro-enteritis complicated by chronic dyspepsia, (4) symptomatic diarrhœa, in which diarrhœa is merely an incident in a disease outside the digestive system. During the summer months the first group passes into the second and third groups, there is no hard-and-fast division between them. I must say from my own personal experience during the last three years I find this classification very helpful.

As regards diagnosis, we must, of course, be quite sure that we are not dealing with some septic focus which will often cause diarrhœa in a child, such as discharging ears, empyema, pyelitis, &c. Overfeeding is the commonest exciting cause of summer diarrhœa. Other causes, such as contamination of food-supply, bad hygienic surroundings, overclothing must also be considered as contributory causes. A child will often cry and become restless in hot weather because it wants a drink of water so as to make good the loss of fluid by perspiration, instead of giving water the mother gives a drink of milk, thus the condition of overfeeding is made worse. A child in hot weather requires less food than it was having in cool weather. When the next feeding-time comes round the mother, thinking that the child is hungry because it is fretful, gives another feed of milk, and so the condition is made worse and Nature brings relief by causing vomiting and diarrhœa. The loss of fluid from the body very rapidly produces a condition of dehydration, and unless this dehydration is promptly relieved the child may die from this cause alone before the stage of intoxication is reached with high temperature. I felt certain that if we got hold of the case during the early stage there would be some hope for treatment to be effective.

Notification

Zymotic enteritis has been a notifiable disease for some years in seven of the London boroughs, but treatment by the health authority has not been suggested in any part of England or Wales. The administrative side of the work was in the hands of Dr J Fenton, the medical officer of health. Zymotic enteritis was made a notifiable disease for children under the age of 5 years on July 1st, 1924.

Directly the notification was received a health visitor called at the home and took notes of the case on a card specially prepared for the purpose. If the patient was already under the care of a medical practitioner and he wished to continue attending and did not require any nursing assistance, nothing further was done. If, however the visitor found that the doctor in attendance wished to have some nursing help, the visitor would telephone to the District Nursing Association, asking them to send someone immediately, and the nurses under these conditions would carry out the doctor's orders. Sometimes the practitioner would prefer to hand over the case to the officers working under the council. Other cases occurred where no doctor was in attendance or likely to be because the parents could not pay a fee. My services were requisitioned during the summer months to see all notified cases who were not receiving medical attention. The administration was therefore simple and worked admirably. There have been no complaints from medical practitioners in the neighbourhood, in fact, during the last year several doctors have asked the nurses to carry out the routine treatment in many of their cases. The district nurses tell me that during the last year the great majority of the cases have been notified within the first 24 hours of the commencement of the disease.

Symptoms

The disease began in the usual way quite suddenly with vomiting and diarrhœa. The children attacked could, roughly, be divided into two classes (1) those apparently quite healthy, and (2) the ill-nourished child under weight for its age, and already suffering from chronic digestive disturbance. The degree of collapse was usually dependent on the frequency of vomiting. The sunken eyes, depressed fontanelle, and scaphoid abdomen and restlessness were well immunity to diphtheria, that a previous attack of diphtheria or prophylaxis does not always give a negative reactor although it confers immunity, that repeated throat-swabs are necessary, that a virulence test is required to clear up all carriers, and that a school population can be dealt with safely and with little disturbance of school routine

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AN UNUSUAL COMPLICATION OF MASTOIDITIS

By F W Watkyn-Thomas, B Ch Camb,
F R C S Eng,
SURGEON TO THE CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL

The three following cases illustrate a *complication* of mastoiditis that adds considerably to the difficulties of diagnosis

Differential Diagnosis

The diagnosis between mastoiditis and furuncle of the meatus is usually easy, but if the pus from the mastoid breaks through the posterior bony wall of the meatus and pushes the *membranous* lining forwards into the meatal lumen the signs and symptoms of a furuncle will be imitated, the meatus is blocked by a tender swelling, the membrane cannot be seen, there is tenderness on pressing the tragus or moving the pinna, and there may be pain during mastication At the same time the "classical signs" of mastoiditis (which, like most classical *signs*, are evidence of advanced disease) may be absent, partly because the pus has already made exit deeply, partly because of factors to be considered later, there is little tenderness or swelling over the mastoid process, and, as the pus lies behind the meatus, which can yield to the pressure, there will not be the deep, boring pain usually associated with mastoiditis For the same reason the swelling is not so tender or so painful as a true furuncle, which is confined to the tightly bound skin of the meatal wall This is the first point that should give a hint as to the true nature of the condition

The second point in the diagnosis is that the swelling, at first at any rate, is deeper in the meatus than a *furuncle* has any right to be, for a furuncle is an infection of the meatal sebaceous glands, and *these do not* extend beyond the cartilaginous meatus The third point is that the patient is more obviously a sick man than he should be from the apparent condition

Clinical Histories

CASE 1—A German prisoner-of-war aged 37. Four days "earache" following a severe cold The meatus was blocked by a tender fluctuating *swelling* It was rather deep, and not quite as tender as a furuncle usually is, but there was pain on mastication, pain on compressing the tragus or moving the pinna, no mastoid tenderness or œdema Temp 100° F, pulse 98 The abscess was opened and pain was relieved, but the temperature did not settle, and three days later there was still a free discharge, and the patient looked a very sick man The membrane could not be seen Hearing was slightly diminished, but *not more* so than could have been explained by the meatal blockage The mastoid was explored and a deep, high antrum, full of pus, was discovered There was an overlapping middle fossa and a forward lateral sinus From a cell below the antrum a fistulous tract opened through the posterior meatal wall The membrane appeared to be intact He recovered with normal hearing

CASE 2—A business man aged 30 A vague history of "earaches" in childhood and a week's history of pain in the right ear A tender, fluctuating swelling—except that it lay rather deeply and was not quite as tender as usual, a typical furuncle—partially occluded the meatus The membrane could not be seen fully, but appeared intact There was no mastoid tenderness, no deafness (low tone limit 16 d v), *and normal temperature* As he was very anxious to return to his work I opened the abscess under local anæsthesia He felt considerable relief, and when he returned to be dressed next day said he was quite comfortable Three days later, *when sitting* in a chair, he had a severe attack of vertigo and fell on to his left side. He went to bed and was seen by me the next day. The temperature and pulse were normal, there was no tenderness over the mastoid, but he had all the signs of a labyrinth fistula It was quite clear that there must be some deep extension so the mastoid was explored The antrum was deep and high, the middle fossa overlapped, and there was a fistula from a cell below the antrum through the posterior meatal wall In the antrum itself there was a small cholesteatoma which had eroded the torus of the horizontal canal Gentle pressure with wool on the erosion caused typical forced movements of the eyes As the cholesteatoma did not extend into the attic there was no need to do more than drain the antrum The patient recovered with normal hearing, and the labyrinth fistula gave no further trouble When the swelling of the meatus subsided the membrane appeared intact except for one doubtful area that might have been an old scar

CASE 3—A boy aged 12 Pain and swelling in the ear with discharge When he was seen, within 24 hours of the attack, there was a swelling *in the meatus near the roof* and rather deep Pus was exuding from this Temp 100 2° F, pulse 90 No swelling over the mastoid, although there was a definite history of a transient swelling in the early stage of the attack that had pushed the ear forward, very slight mastoid tenderness The position of the meatal swelling aroused suspicions, and when it was incised rough bone could be felt with a probe The mastoid was explored The apical cell was perfectly clear, *the cells above it were* filled with blood-stained fluid and laked pus, the bone was softened, and a track was found through the posterior meatal wall There was a high, deep antrum full of blood-stained fluid with a thickened, necrotic lining He made a good recovery with intact hearing, but there was some difficulty in getting complete healing of the operation incision It eventually yielded to two doses of ionisation by Mr T B Jobson There was an old, *healed scar on the* membrane

Commentary

The three cases have these points in common: 1 A mastoid infection without evidence of concurrent acute otitis media 2 A fistula through the posterior bony wall of the meatus 3. A high and deep antrum In every case the pus reached the meatus through the cells below the antrum, the route described by Lermoyez, who points out that this chain of cells, the "cellules limitrophes," is the most constant of all the groups

With regard to the integrity of the membrane in these three cases it is interesting to note that in a recent series of 18 cases of acute mastoiditis without middle-ear symptoms described by Beeger there was necrosis of the posterior wall in *four, and in four* others there was sufficient swelling of the meatus to render the membrane invisible.

MASSIVE COLLAPSE OF THE LUNGS

COMPLICATING A CASE OF ACUTE MENINGITIS.

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The following case is interesting owing to the relative rarity of the condition

The patient, a well-developed and previously healthy young man aged 18, was seen in consultation with Dr C Moffatt, of Irlam, on Oct 30th, 1926

He had been perfectly well until the previous Wednesday, when he was seized with severe pain in the head On Thursday he got up, but did not go to work, and on Friday there developed pain in the back of the neck, and the patient felt that he was unable to "rise *or do* anything" During the later part of Friday and on Saturday morning some difficulty in breathing developed, which was accentuated by any attempt at movement and by coughing This difficulty was described by the patient as a feeling as though the chest were being tightly gripped During Friday and Saturday the temperature was between 100° and 101° F

I saw him about 4 P M. on Saturday He was lying comfortably on his back with the head partially raised on pillows There was marked cyanosis of the face and lips, and evident respiratory *embarrassment* of moderate degree The mentality was clear, the temperature was 101 1°, the pulse 126, and quite regular There was have begun to realise the importance of early notification and absolute starvation

The Health Visitors' Notes, 1924–26.

The number of cases visited was 216 Of these cases 119 were under 1 year of age, and 97 were 1 year and over The number of families in which the patient was the only case was 197 The number of families in which more than one case occurred was 11 The number of healthy children attacked was 129 Children who were under the normal weight for their age and suffering from chronic digestive disturbances numbered 66

Food on which the Children were Fed—Breast only, 33, breast and Nestlé's, 5; breast and Cow and Gate, 2, breast and Ambrosia, 3, breast and Glaxo, 1, breast and cow's, 5, breast and Robb's biscuit, 1, cow's milk and Ambrosia, 1, Nestlé's milk, 13, cow's milk, 51, Glaxo, 6, mixed diet, 75, Ambrosia, 1; Almata, 1, Allenbury, 1, Cow and Gate, 1 Mixed diet means that a child was having ordinary food, consisting generally of three meals of cow's milk, crust or bread-and-butter, and a midday meal of gravy and bread or potatoes and milk pudding The ages would vary from 8 months to 2 or 3 years

Infection

The question whether these cases infect one another has often been raised On examination of the present series it would appear that the great majority were not infective, but in some instances where there were several cases in the same house or the same family, and particularly when death occurred, there is a chance of infection having been conveyed by fæcal matter An interesting paper on the communication of diarrhœa from the sick to the healthy was read before the Epidemiological Section of the Royal Society of Medicine by Dr J E. Sandilands, the former medical officer of health for Kensington, in 1909 He gave evidence in his paper amounting to proof that certain fatal forms of summer diarrhœa are communicable Nevertheless, he says·

> "Communicability is by no means a conspicuous feature of epidemic diarrhœa in every case Thus in 19 out of 35 tenement houses in Kensington where deaths were registered as due to diarrhœa no other cases occurred Again, in 25 out of 35 fatal cases of diarrhœa no source of infection was found in the families occupying the houses where these patients died And, lastly, in 22 families containing young children fatal diarrhœa occurred, and yet in these families 44 parents and 58 children were intimately exposed to infection without falling ill In five hospitals there is no evidence of the spread of diarrhœa from patient to patient, and the sum of the evidence suggests that diarrhœa is not more infectious than typhoid fever, and is not conveyed except by the same channels"

In order to obviate contamination of food the mothers were told to wash their hands after touching soiled napkins

Conclusions

1. I think I have shown that it is easy to organise a scheme for early treatment of zymotic enteritis in large towns, and so relieve the pressure on our hospitals and reduce the number of moribund cases sent to these institutions 2 The results of early treatment are excellent, and the return to normal feeding is made far easier if the case is seen and treated early 3 I think this scheme may prove to be a useful addition to the public health service of the country

I am greatly indebted to the District Nursing Association of Kensington for their enthusiasm in their work, also to the official health visitors and superintendents of infant welfare centres

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THE SCHICK TEST IN SCHOOL PRACTICE

By WILLIAM DUNN, M B, C M ABERD,
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AND
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UPPINGHAM

In a small outbreak of clinical diphtheria occurring in a school-house, when three boys and the matron were affected, the source of the outbreak was traced to a boy who had been at home on leave, and while there had associated with an established diphtheria contact, whose throat-swab was reported negative A swab from the throat of the returned boy was reported negative on March 31st, positive on April 8th. Thirty-five boys, aged between 14 and 18 years, and 15 adults were then submitted to the Schick test (Burroughs Wellcome outfit), but no attempt was made to immunise the contacts with toxin-antitoxin mixture

Case	Date of previous—		Schick test March 31	Result of throat swab		
	Attack	Prophylactic treatment		March 31	April 8	April 13
1	1921		–	+	–	–
2	1920		+	+	–	–
3	1921		–	–	–	
4	1904		–	–	–	
5	1899		+	–	–	
6		1921	+	–	–	
7		1922	+	–	–	
8		1912	–	–	–	
9		1914	–	–	–	

All 50 were injected concurrently, 1 minim of freshly diluted toxin being injected intradermally over the flexor aspect of the left forearm, a similar injection of sterilised toxin in the right forearm serving as control Throat-swabs were taken at the same time The arms were inspected 72 and 96 hours later In 19 cases the Schick reaction was positive, in 26 cases negative, and in 5 cases dubious Five boys gave a history of previous diphtheritic infection and four of prophylactic treatment

(Cases 1 and 2 in which the throat-swabs were positive had been in close contact with the clinical cases)

Of the 19 positive reactors, 5 had positive throat swabs, in 1 the first swab was negative and the second positive, 1 was sent home at the request of the parents, in 3 the organisms were found to be avirulent Two of these cases having chronic follicular tonsillitis, all were repeatedly found clear of diphtheria bacilli after the second swab

Of the 31 negative reactors, 7 (of whom 3 were in close contact with the clinical cases) had positive throat-swabs, 6 had no further positive swabs after seven days and repeated investigations, in 1 the organisms were found to be avirulent

The negative reactors with negative throat-swabs were sent back to school The positive reactors with negative throat-swabs were each given 1500 units of antidiphtheria serum The positive reactors with positive throat-swabs were given 6000 units of serum and were isolated until two throat-swabs had proved negative, a virulence test being done if the third was positive There were no further cases

The lessons to be drawn from this small outbreak are that the Schick test is reliable for determining but a stage of mesenteric gland tuberculosis Preceding the ascitic stage he believed there was a miliary condition, when the peritoneum was invaded by minute nodules perhaps in the absence of fluid. The adhesive type he looked upon as that of repair, and if this were so it set a definite limit to the scope of operative treatment Miliary tuberculosis in the peritoneum was only revealed at an operation for relieving pain for which the appendix had been held responsible. Then the correct treatment could be started, thus justifying the operation. Operation for ascites was also legitimate, and had been successful many times, but agreement had not been reached as to whether the operation was really curative or only hastened the adhesive stage The latter was not likely to be improved by laparotomy, if operation were done the intestine might be found adherent to the parietal peritoneum and thus liable to be injured, while the handling of the gut and the disturbance of adhesions might result in a fæcal fistula Operation should only be done to relieve emergency; many cases did well if left alone, and improvement was said to ensue from artificial sunlight

Tuberculous Enteritis.—In two of his cases of tuberculous enteritis obstruction had occurred; in all the ulceration was multiple. There was support for the view that ulceration took place in patients who already had pulmonary tuberculosis and swallowed their sputum. The prognosis was poor His three cases of ileo-cæcal tuberculosis were all in adults of ages 27 23, and 51, and in all of them it took the hyperplastic form The patients did well after a block resection of the affected area, but one died 17 months later of pulmonary tuberculosis

Tuberculous Appendicitis.—His one case of this condition was of the hyperplastic type, and only microscopical examination disclosed its nature In the ulcerative form the mucosa may be affected without the other coats being thickened

Tuberculous Mesenteric Glands—Mr Carson said he still retained the views he expressed in a paper read before the Medical Society in 1918 on the subject of tuberculous glands in the mesentery, and they had received confirmation from America and elsewhere The pain, he maintained, was due to spasm of the circular muscle coat, when mesenteric glands were tuberculous and there was no complication there was no rise of temperature Sepsis in this condition was unusual; that would cause pyrexia The average age of his 52 cases was 13 9 years, the oldest being aged 51 The sexes were about equally affected Except for pain the *only common* symptom was vomiting, which occurred in half the cases Disorders apt to be confused with mesenteric gland tuberculosis were colic from dietetic errors, relapsing appendicitis, intestinal worms, and ureteric stone Colic came on in infrequent attacks and was relieved by vomiting and by action of the bowels Relapsing appendicitis was accompanied by greater illness, furred tongue, increase of temperature and pulse-rate, flatulence nausea and constipation, pain lasted longer and was more localised, and there might be rigidity and tenderness on examination. Worms could only be diagnosed with certainty by finding them in the stools In ureteric stone the X rays enabled a diagnosis to be made if a ureteric bougie could be passed · even if it could not the shape of the shadow was quite distinct from that of a calcareous gland Urinary symptoms might give some help With regard to complications, he had noted that intussusception occurred only in the non-caseating type in his cases and obstruction in the caseating Of his 19 non-caseating cases which recovered ten remained quite well two had occasional pain still one had pulmonary tuberculosis and was in poor health, one died of that disease, and five had not been traced Of the 18 cases which had caseation and survived 13 remained quite well 2 had occasional pain 3 were untraced Of the 10 calcareous cases which recovered 5 were quite well, 1 had occasional pain, and the others were untraced

Mr. Carson, therefore, submitted that tuberculous disease of mesenteric glands was a serious condition, with a high mortality. and in later stages demanded elaborate surgery. His impression was that fewer cases of abdominal tuberculosis were being seen now than formerly, and he suggested two explanations for this reduction One was that modern medical treatment resulted in a cure of more cases, and the other that since the war the children as a whole were better fed, housed, and clothed and hence were better equipped for resisting infection If the milk-supply could be controlled an enormous step forward would result, but the necessary legislation seemed difficult of enactment.

Discussion.

Mr ZACHARY COPE said that, excluding genito-urinary tuberculosis and psoas abscess associated with active spinal caries, there remained three forms of the disease under discussion—glandular, intestinal. peritoneal The most common group of glands to be affected was the ileo-cæcal It was quite usual to find calcified glands in people who were apparently healthy. In the intestine the lesion might take the form of an ulcer eating deeply into the bowel wall and its cicatrisation might result in a stricture. Cæcal tuberculosis usually took the hypertrophic form. The peritoneum might be affected by miliary tubercles forming on the serous aspect of an ulcer of the bowel. If these tubercles were widely spread the peritoneum might be found thickened, even to half an inch, and in such cases fluid was often poured out In later stages a combination of conditions formed a very serious picture Usually abdominal tubercle was associated with deteriorated general health, and when this was progressive the possibility of the presence of tubercle must be considered

Mr. Cope mentioned seven manifestations of the disease as the surgeon saw them. Colicky pains might be the only symptom complained of; they were short, often severe. and might be accompanied by retching or vomiting The pains were not confined to one spot; there might be fever too If localised to the right iliac fossa exploration was desirable, as the condition might be appendicitis. A tumour might be evident, formed by large fleshy glands, rolled-up omentum, or hypertrophied cæcal tuberculosis Intussusception or neoplasm might be simulated If the tumour was formed of caseous glands there were usually other signs of tubercle also A skiagram might reveal calcified glands Adhesion to a calcified gland was a common cause of acute intestinal obstruction. The relief of this obstruction might be very difficult as the adherent coil might be deep down at the back of the abdomen. Obstruction might also be due to a tuberculous stricture Intestinal ulceration led to diarrhœa. When a fæcal fistula formed it was usually in the region of the umbilicus Peritonitis due to a perforation into the general peritoneal cavity was usually a fatal complication, as the patient was already debilitated by the primary lesion. It might be a result of an acute miliary invasion of the peritoneum, without any ulceration having occurred, and when this was so the prognosis was somewhat more hopeful. Ascites resulted from a subacute miliary infiltration of the peritoneum. It could generally be diagnosed by considering the history, the general aspect, and the local condition; but mistakes were possible. For example, he had known in a child. aged 6, a large hydronephrosis, extending from diaphragm to pelvic floor, mistaken for tuberculous ascites In adults it was often difficult to distinguish between cancerous and tuberculous peritonitis, in cases in which he was in doubt the condition had always proved to be cancerous

Indications for surgical interference in cases of abdominal tuberculosis Mr Cope set out as follows: (1) to let out the ascitic fluid, which usually was poor in protective substances; (2) to remedy the intestinal obstruction, (3) to suture perforations and drain septic peritonitis; (4) occasionally to remove slight retraction of the head, and any attempt at passive movement produced severe pain extending down the neck into the back Kernig's sign was positive on both sides, and in eliciting it severe pain was complained of extending right up the back Brudzinski's sign was negative The right pupil was somewhat larger than the left, but both pupils were regular in outline, and reacted normally to light and to accommodation The abdominal reflexes were absent on both sides, as were the knee-jerks The plantar response on the right side was definitely flexor, on the left side there was no actual movement of the toes on the application of a stimulus, but there was evident contraction or tightening of the hamstring tendons There was no evidence of papillœdema There were no cranial nerve palsies No sensory disturbance was discovered On examination of the chest the heart was found to be markedly displaced to the right side, the impulse extending beyond the right mid-clavicular line Movement was somewhat restricted over the right side, but there was no definite flattening, or recession of the chest wall Percussion note was resonant everywhere, and the breath sounds were everywhere vesicular but somewhat diminished over the right base No adventitious sounds were heard at this examination, but Dr Moffatt informed me that at periods there had been well-marked generalised râles The liver was on the right side

The absent abdominal reflexes and the absent knee-jerks, combined with apparent slight involvement of the pyramidal path to the left side, indicated the presence of some organic nervous disease The predominance of pain in the head and neck, together with the retraction, suggested that the meninges were involved, the abrupt onset, the pyrexia and tachycardia, supported an acute inflammatory process as the probable nature of the pathological change The diagnosis was that of acute meningo-encephalitis

The question then arose as to the interpretation of the dextrocardia In view of the fact that there was no transposition of the viscera, and in view of the obvious respiratory embarrassment, it seemed almost certain that the cardiac displacement was acquired and not congenital There was clearly nothing at the left side of the chest in the nature of a pneumothorax or pleural effusion to account for such displacement, nor was there any evidence of gross fibrosis on the right side which might have led to active dragging over of the heart to that side The conclusion, therefore, to which I came was that there probably existed massive collapse of the right lung, especially of its basal lobe, and it seemed to me that this was strongly supported by the apparently abrupt, or, at any rate, rapid development of the displacement

The patient was transferred to Ancoats Hospital for further investigation and treatment Several attempts were made to perform lumbar puncture, but on each occasion such marked respiratory embarrassment was produced as to render it impossible, and in view of the lung condition an anæsthetic seemed out of the question For the next 12 hours or so the position was more or less stationary, with occasional paroxysms of increased dyspnœa accompanied by temporary accumulation of secretion in the lungs During the early part of Sunday afternoon the heart was noticed to be receding towards the left, and, coincident with this, the patient's condition grew worse This change in the position of the heart was attributed to collapse developing in the left side of the chest The patient died at 5 P.M.

Post-mortem Examination—I performed a necropsy on Nov 1st The body was well developed and rigor mortis was still present There was no external evidence of injury or disease, though there was still cyanosis of the face On opening the thorax no air escaped. The heart occupied a normal position but was unduly exposed, both the lungs were markedly collapsed, and this was especially evident in the case of the basal lobes, which were shrunken up against the vertebral column, completely exposing both cupolæ of the diaphragm. Each pleural sac contained a few ounces of fluid The lungs themselves were firm and somewhat leathery in consistency, especially the right lower lobe, which was almost completely airless, and did not float in water Otherwise the lungs were normal The heart showed no gross abnormality with the exception of a few punctate subepicardial hæmorrhages There was slight fatty change in the aortic intima close to its root The liver and kidneys showed cloudy swelling, the adrenal cortex showed the pallor so frequently associated with severe infections The spleen was not enlarged, was of moderate consistence, and showed no gross naked-eye change The brain was intensely injected, but there was no exudate on the surface and no meningeal hæmorrhages Naked eye, the spinal cord showed no apparent change

Swabs were taken from cerebral sulci in several situations Culture of this material yielded a very free growth of Gram-negative diplococci identified as meningococci, together with a very long-chained hæmolytic streptococcus

Commentary

Massive collapse of the lung is a condition in which there is abrupt, or rapid collapse of the whole or a large area of a lung occurring without any primary intrapleural or pulmonary cause—e g, pneumothorax, pleural effusion, hæmothorax, bronchial obstruction, &c The condition was originally described by W Pasteur, who defined it as "a total deflation of a large area of lung tissue of sudden onset, due to failure of respiratory power." The cases upon which the original description was based were cases of paralysis of the diaphragm, arising from post-diphtheritic neuritis The majority, however, have occurred apart from this condition, and especially in association with trauma, either to the same or opposite side of the thorax or to some more distant part This type has been termed the reflex type, and has been particularly described by Sir John Rose Bradford as a result of gunshot wound. Cases are also described occurring as a sequela of abdominal operations, and, occasionally, the condition may arise as a complication of pneumonia and pleurisy The exact mechanism of the production of the condition, especially in the reflex type, is by no means clear, whether it be the result of diaphragmatic paralysis or contraction of the bronchial muscle, and resultant cutting off of the air entry to the affected area of lung

The interesting features of the case here described appear to be. 1 The occurrence of massive collapse of the lungs in association with acute meningitis 2 The possible explanation of the collapse, whether of the primary paralytic type due to involvement of the cervical cord or whether reflex in origin 3 The paucity of physical signs of collapse other than the cardiac displacement 4 The mixed meningococcal and streptococcal infection

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

AT a meeting of this Section held on Jan 5th, Mr V WARREN LOW, the President, occupying the chair, Mr H W. CARSON opened a discussion on

ABDOMINAL TUBERCULOSIS

This condition, he said, as seen by the surgeon did not show many varieties, but missing or unusual symptoms might cause diagnostic difficulties, and the state of things revealed after an incision had been made often placed a strain on the surgeon's skill and experience In the last eight years he had operated on only five cases of tuberculous peritonitis, four of tuberculous enteritis, three of ileo-cæcal tubercle, one of tuberculous appendicitis, and 52 cases of tuberculosis of mesenteric glands In some of the instances the operation was urgent, usually to relieve obstruction His series did not support the current belief that abdominal tuberculosis was an affection of childhood The disease in the mesenteric glands showed the youngest age-incidence—65 per cent 5–15 years of age, 17 per cent over 25, two of them as old as 50 and 51 Tuberculous enteritis (including ileo cæcal) was a disease of middle life It was not usual for mesenteric gland tubercle to be associated with pulmonary tuberculosis nor for tuberculous peritonitis to be so allied, though tuberculous enteritis and lung disease often coexisted

Tuberculous Peritonitis—Mr Carson asked whether tuberculous peritonitis was ever primary or whether it might not be borne by the blood from some remote focus—pulmonary, mediastinal, tubal, or mesenteric Three forms were described—ascitic, adhesive, caseous The last-named, he submitted, had a different ætiology from the other two kinds, being, he considered, but a stage of mesenteric gland tuberculosis. Preceding the ascitic stage he believed there was a miliary condition, when the peritoneum was invaded by minute nodules, perhaps in the absence of fluid. The adhesive type he looked upon as that of repair, and if this were so it set a definite limit to the scope of operative treatment. Miliary tuberculosis in the peritoneum was only revealed at an operation for relieving pain for which the appendix had been held responsible. Then the correct treatment could be started, thus justifying the operation. Operation for ascites was also legitimate, and had been successful many times, but agreement had not been reached as to whether the operation was really curative or only hastened the adhesive stage. The latter was not likely to be improved by laparotomy: if operation were done the intestine might be found adherent to the parietal peritoneum and thus liable to be injured while the handling of the gut and the disturbance of adhesions might result in a fæcal fistula. Operation should only be done to relieve emergency; many cases did well if left alone, and improvement was said to ensue from artificial sunlight.

Tuberculous Enteritis.—In two of his cases of tuberculous enteritis obstruction had occurred: in all the ulceration was multiple. There was support for the view that ulceration took place in patients who already had pulmonary tuberculosis and swallowed their sputum. The prognosis was poor. His three cases of ileo-cæcal tuberculosis were all in adults of ages 27, 23, and 51, and in all of them it took the hyperplastic form. The patients did well after a block resection of the affected area, but one died 17 months later of pulmonary tuberculosis.

Tuberculous Appendicitis.—His one case of this condition was of the hyperplastic type, and only microscopical examination disclosed its nature. In the ulcerative form the mucosa may be affected without the other coats being thickened.

Tuberculous Mesenteric Glands.—Mr. Carson said he still retained the views he expressed in a paper read before the Medical Society in 1918 on the subject of tuberculous glands in the mesentery, and they had received confirmation from America and elsewhere. The pain, he maintained, was due to spasm of the circular muscle coat: when mesenteric glands were tuberculous and there was no complication there was no rise of temperature. Sepsis in this condition was unusual: that would cause pyrexia. The average age of his 52 cases was 13.9 years, the oldest being aged 51. The sexes were about equally affected. Except for pain the only common symptom was vomiting, which occurred in half the cases. Disorders apt to be confused with mesenteric gland tuberculosis were colic from dietetic errors, relapsing appendicitis, intestinal worms, and ureteric stone. Colic came on in infrequent attacks and was relieved by vomiting and by action of the bowels. Relapsing appendicitis was accompanied by greater illness, furred tongue, increase of temperature and pulse-rate, flatulence, nausea, and constipation; pain lasted longer and was more localised, and there might be rigidity and tenderness on examination. Worms could only be diagnosed with certainty by finding them in the stools. In ureteric stone the X rays enabled a diagnosis to be made if a ureteric bougie could be passed: even if it could not, the shape of the shadow was quite distinct from that of a calcareous gland. Urinary symptoms might give some help. With regard to complications, he had noted that intussusception occurred only in the non-caseating type in his cases and obstruction in the caseating. Of his 19 non-caseating cases which recovered, ten remained quite well, two had occasional pain still, one had pulmonary tuberculosis and was in poor health, one died of that disease, and five had not been traced. Of the 18 cases which had caseation and survived, 13 remained quite well, 2 had occasional pain, 3 were untraced. Of the 10 calcareous cases which recovered, 5 were quite well, 1 had occasional pain and the others were untraced.

Mr. Carson therefore submitted that tuberculous disease of mesenteric glands was a serious condition, with a high mortality, and in later stages demanded elaborate surgery. His impression was that fewer cases of abdominal tuberculosis were being seen now than formerly, and he suggested two explanations for this reduction. One was that modern medical treatment resulted in a cure of more cases and the other that since the war the children as a whole were better fed, housed, and clothed, and hence were better equipped for resisting infection. If the milk-supply could be controlled an enormous step forward would result, but the necessary legislation seemed difficult of enactment.

Discussion.

Mr. ZACHARY COPE said that excluding genito-urinary tuberculosis and psoas abscess associated with active spinal caries, there remained three forms of the disease under discussion—glandular, intestinal, peritoneal. The most common group of glands to be affected was the ileo-cæcal. It was quite usual to find calcified glands in people who were apparently healthy. In the intestine the lesion might take the form of an ulcer eating deeply into the bowel wall and its cicatrisation might result in a stricture. Cæcal tuberculosis usually took the hypertrophic form. The peritoneum might be affected by miliary tubercles forming on the serous aspect of an ulcer of the bowel. If these tubercles were widely spread the peritoneum might be found thickened, even to half an inch, and in such cases fluid was often poured out. In later stages a combination of conditions formed a very serious picture. Usually abdominal tubercle was associated with deteriorated general health, and when this was progressive the possibility of the presence of tubercle must be considered.

Mr. Cope mentioned seven manifestations of the disease as the surgeon saw them. Colicky pains might be the only symptom complained of: they were short, often severe, and might be accompanied by retching or vomiting. The pains were not confined to one spot: there might be fever too. If localised to the right iliac fossa exploration was desirable, as the condition might be appendicitis. A tumour might be evident, formed by large fleshy glands, rolled-up omentum, or hypertrophied cæcal tuberculosis. Intussusception or neoplasm might be simulated. If the tumour was formed of caseous glands there were usually other signs of tubercle also. A skiagram might reveal calcified glands. Adhesion to a calcified gland was a common cause of acute intestinal obstruction. The relief of this obstruction might be very difficult as the adherent coil might be deep down at the back of the abdomen. Obstruction might also be due to a tuberculous stricture. Intestinal ulceration led to diarrhœa. When a fæcal fistula formed it was usually in the region of the umbilicus. Peritonitis due to a perforation into the general peritoneal cavity was usually a fatal complication, as the patient was already debilitated by the primary lesion. It might be a result of an acute miliary invasion of the peritoneum, without any ulceration having occurred, and when this was so the prognosis was somewhat more hopeful. Ascites resulted from a subacute miliary infiltration of the peritoneum. It could generally be diagnosed by considering the history, the general aspect, and the local condition: but mistakes were possible. For example, he had known in a child, aged 6, a large hydronephrosis, extending from diaphragm to pelvic floor, mistaken for tuberculous ascites. In adults it was often difficult to distinguish between cancerous and tuberculous peritonitis; in cases in which he was in doubt the condition had always proved to be cancerous.

Indications for surgical interference in cases of abdominal tuberculosis Mr. Cope set out as follows: (1) to let out the ascitic fluid, which usually was poor in protective substances; (2) to remedy the intestinal obstruction: (3) to suture perforations and drain septic peritonitis; (4) occasionally to remove slight retraction of the head, and any attempt at passive movement produced severe pain extending down the neck into the back. Kernig's sign was positive on both sides, and in eliciting it severe pain was complained of extending right up the back. Brudzinski's sign was negative. The right pupil was somewhat larger than the left, but both pupils were regular in outline, and reacted normally to light and to accommodation. The abdominal reflexes were absent on both sides, as were the knee-jerks. The plantar response on the right side was definitely flexor; on the left side there was no actual movement of the toes on the application of a stimulus, but there was evident contraction or tightening of the hamstring tendons. There was no evidence of papillœdema. There were no cranial nerve palsies. No sensory disturbance was discovered. On examination of the chest the heart was found to be markedly displaced to the right side, the impulse extending beyond the right mid-clavicular line. Movement was somewhat restricted over the right side, but there was no definite flattening, or recession of the chest wall. Percussion note was resonant everywhere, and the breath sounds were everywhere vesicular but somewhat diminished over the right base. No adventitious sounds were heard at this examination, but Dr. Moffatt informed me that at periods there had been well-marked generalised râles. The liver was on the right side.

The absent abdominal reflexes and the absent knee-jerks, combined with apparent slight involvement of the pyramidal path to the left side, indicated the presence of some organic nervous disease. The predominance of pain in the head and neck, together with the retraction, suggested that the meninges were involved; the abrupt onset, the pyrexia and tachycardia, supported an acute inflammatory process as the probable nature of the pathological change. The diagnosis was that of acute meningo-encephalitis.

The question then arose as to the interpretation of the dextrocardia. In view of the fact that there was no transposition of the viscera, and in view of the obvious respiratory embarrassment, it seemed almost certain that the cardiac displacement was acquired and not congenital. There was clearly nothing at the left side of the chest in the nature of a pneumothorax or pleural effusion to account for such displacement, nor was there any evidence of gross fibrosis on the right side which might have led to active dragging over of the heart to that side. The conclusion, therefore, to which I came was that there probably existed massive collapse of the right lung, especially of its basal lobe, and it seemed to me that this was strongly supported by the apparently abrupt, or, at any rate, rapid development of the displacement.

The patient was transferred to Ancoats Hospital for further investigation and treatment. Several attempts were made to perform lumbar puncture, but on each occasion such marked respiratory embarrassment was produced as to render it impossible, and in view of the lung condition an anæsthetic seemed out of the question. For the next 12 hours or so the position was more or less stationary, with occasional paroxysms of increased dyspnœa accompanied by temporary accumulation of secretion in the lungs. During the early part of Sunday afternoon the heart was noticed to be receding towards the left, and, coincident with this, the patient's condition grew worse. This change in the position of the heart was attributed to collapse developing in the left side of the chest. The patient died at 5 P.M.

Post-mortem Examination.—I performed a necropsy on Nov. 1st. The body was well developed and rigor mortis was still present. There was no external evidence of injury or disease, though there was still cyanosis of the face. On opening the thorax no air escaped. The heart occupied a normal position but was unduly exposed, both the lungs were markedly collapsed, and this was especially evident in the case of the basal lobes, which were shrunken up against the vertebral column, completely exposing both cupolæ of the diaphragm. Each pleural sac contained a few ounces of fluid. The lungs themselves were firm and somewhat leathery in consistency, especially the right lower lobe, which was almost completely airless, and did not float in water. Otherwise the lungs were normal. The heart showed no gross abnormality with the exception of a few punctate subepicardial hæmorrhages. There was slight fatty change in the aortic intima close to its root. The liver and kidneys showed cloudy swelling, the adrenal cortex showed the pallor so frequently associated with severe infections. The spleen was not enlarged, was of moderate consistence, and showed no gross naked-eye change. The brain was intensely injected, but there was no exudate on the surface and no meningeal hæmorrhages. Naked eye, the spinal cord showed no apparent change.

Swabs were taken from cerebral sulci in several situations. Culture of this material yielded a very free growth of Gram-negative diplococci identified as meningococci, together with a very long-chained hæmolytic streptococcus.

Commentary

Massive collapse of the lung is a condition in which there is abrupt, or rapid collapse of the whole or a large area of a lung occurring without any primary intrapleural or pulmonary cause—e.g., pneumothorax, pleural effusion, hæmothorax, bronchial obstruction, &c. The condition was originally described by W. Pasteur, who defined it as "a total deflation of a large area of lung tissue of sudden onset, due to failure of respiratory power." The cases upon which the original description was based were cases of paralysis of the diaphragm, arising from post-diphtheritic neuritis. The majority, however, have occurred apart from this condition, and especially in association with trauma, either to the same or opposite side of the thorax or to some more distant part. This type has been termed the reflex type, and has been particularly described by Sir John Rose Bradford as a result of gunshot wound. Cases are also described occurring as a sequela of abdominal operations, and, occasionally, the condition may arise as a complication of pneumonia and pleurisy. The exact mechanism of the production of the condition, especially in the reflex type, is by no means clear, whether it be the result of diaphragmatic paralysis or contraction of the bronchial muscle, and resultant cutting off of the air entry to the affected area of lung.

The interesting features of the case here described appear to be: 1. The occurrence of massive collapse of the lungs in association with acute meningitis. 2. The possible explanation of the collapse, whether of the primary paralytic type due to involvement of the cervical cord or whether reflex in origin. 3. The paucity of physical signs of collapse other than the cardiac displacement. 4. The mixed meningococcal and streptococcal infection.

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

AT a meeting of this Section held on Jan. 5th, Mr. V. WARREN LOW, the President, occupying the chair, Mr. H. W. CARSON opened a discussion on

ABDOMINAL TUBERCULOSIS

This condition, he said, as seen by the surgeon did not show many varieties, but missing or unusual symptoms might cause diagnostic difficulties, and the state of things revealed after an incision had been made often placed a strain on the surgeon's skill and experience. In the last eight years he had operated on only five cases of tuberculous peritonitis, four of tuberculous enteritis, three of ileo-cæcal tubercle, one of tuberculous appendicitis, and 52 cases of tuberculosis of mesenteric glands. In some of the instances the operation was urgent, usually to relieve obstruction. His series did not support the current belief that abdominal tuberculosis was an affection of childhood. The disease in the mesenteric glands showed the youngest age-incidence—65 per cent. 5–15 years of age, 17 per cent. over 25, two of them as old as 50 and 51. Tuberculous enteritis (including ileo-cæcal) was a disease of middle life. It was not usual for mesenteric gland tubercle to be associated with pulmonary tuberculosis nor for tuberculous peritonitis to be so allied, though tuberculous enteritis and lung disease often coexisted.

Tuberculous Peritonitis.—Mr. Carson asked whether tuberculous peritonitis was ever primary or whether it might not be borne by the blood from some remote focus—pulmonary, mediastinal, tubal, or mesenteric. Three forms were described—ascitic, adhesive, caseous. The last-named, he submitted, had a different ætiology from the other two kinds, being, he considered, abdomen and tuberculous epididymitis he would not fail to diagnose tuberculous peritonitis In the neck gland disease was always secondary. The resistance of these glands was diminished by some infection of the tonsil, and then tubercle was secondarily implanted on them, and he thought the same was true of the glands in the mesentery He agreed that not all these gland enlargements were necessarily tuberculous, if they had been he thought he would have seen a great many more cases than he had done

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SECTION OF NEUROLOGY

At a meeting of this Section on Jan 13th Sir James Purves-Stewart took the chair, and Dr Aldren Turner, President of the Section, opened a discussion on

EPILEPSY

After summarising the features of various forms of epileptic manifestations, he drew attention to Rowse's attempt to broaden the aspect of epilepsy so as to include the psychic, the view of that worker being that epilepsy was the prototype of every functional nervous illness and that in certain phases of disturbed consciousness attributable to emotional causes there was a difficulty in separating epilepsy from other mental or psychic states The fact was, said Dr Turner, that there was no single clinical entity to which the name of epilepsy could be applied, and evidence was accumulating that the epileptic type of fit-reaction might result from mental as well as from physical causes Three groupings seemed possible (1) the organic, (2) the toxinfective or metabolic, and (3) the psychogenic, but there remained a great mass of residual cases which could only, at the present stage of knowledge be designated as "epilepsy of unknown origin" Any cerebral organic lesion might have as one of its symptoms seizures resembling an epileptic fit. When the cause was a trauma, epilepsy might not develop until four or five years after the accident, and there was an absence of any definite or constant relation between the region of the brain involved and the mode of onset of the major fit Clearly also, the fit was not due to any cerebral scarring Only about 5 per cent. of a large series of penetrating wounds of the head developed epilepsy, and there must therefore be something more than tissue changes at the seat of injury to account for traumatic epilepsy A case had been described by Foster Kennedy, in which the patient had a fit during an operation on the parietal cortex sudden blanching of the cortex was observed, followed quickly by venous engorgement and protrusion of the brain beyond the level of the bone defect, and this protrusion coincided in time with the period of the clonic convulsion The inherent instability of epileptic patients might be due to defect in the vegetative nervous system. Dr J S Collier favoured the toxic origin of epilepsy, and was able to make out a strong case. In some cases of epilepsy there was evidence, on other grounds, that the normal endocrine-balance was disturbed, but in Dr Turner's hands therapeutic measures based on endocrine therapy had given only negative results On the question of epilepsy of psychogenic origin, he said that there was difficulty in distinguishing the hysterical from the epileptic type of fit, especially when the patient was under psychical stress The question arose whether even an intensified emotion, without any other factor, would not suffice to produce an attack of major epilepsy Some patients derived benefit from psychotherapy, but there was reason for saying that psycho-analytic treatment had not had the effect which was expected of it He found it difficult to fix upon any special mentality in the case of all epileptic patients, but anxiety due to uncertainty as to when another fit might occur was a very important accompaniment In a few cases in which, after years of seizures, an arrest had been brought about, there had been a cessation of this anxiety and a re-establishment of the normal attitude towards life. Dr Turner proceeded to discuss the large group of cases of epilepsy of unknown origin. About 33 per cent of a large series showed heredity in regard to the malady, and in a small number of the remainder alcoholism might have caused injury to the germ-plasm, or there might have been some form of intoxication during intrauterine life

Discussion

Dr George Riddoch said that during the past two years investigation into this subject had been going on at the London Hospital Many questions about the disorder remained unsolved, notably the large question of the ætiology as well as the mechanism by which the seizure and the loss of consciousness were produced Dr Russell Brain had investigated 200 people (unselected) of the hospital class and had found that there was a hereditary history in 28 per cent, but taking into consideration the difficulty of getting accurate family histories, and the likelihood that small attacks of petit mal occurred without any significance having been attributed to them, the speaker thought that 28 per cent was far below the actual figure Convulsions in infancy were about twice as frequent in families with a hereditary history of epilepsy as in those without such a history Insanity had not been found to be more common in epileptics than in non-epileptics, but in epileptic families there was a greater proportion of epileptics amongst the first-born members than among those born later In the late war only 5 per cent of soldiers who had sustained head injuries were said to have had epilepsy, but this figure was probably well on the low side, because petit mal attacks had passed unrecognised In the investigations at the London Hospital a large proportion of the patients subject to attacks of petit mal had shown definite improvement on being allowed nothing but water for a fortnight, the fits either ceased within 48 hours of the beginning of starvation, or their frequency was greatly diminished and the benefit continued for some time after food was resumed He did not advocate this course as a therapeutic measure, the test had been made in view of claims which had been made Dr Riddoch referred to experiments which had been done with the object of securing a good convulsant with which results could be checked and repeated at will Cocaine gave better results than insulin A 1 per cent solution of cocaine injected into the marginal vein of the ear of the rabbit produced seizures in every way comparable with those in the human epileptic, the animals were unconscious and many of them had incontinence and a post-convulsive period of excitement Cats gave a different result with cocaine Thujol gave definite results, and work with this drug was being continued The intravenous injection of bromide had also been tried in increasing concentration The seizures had gradually diminished in severity and had finally been eliminated altogether

Dr Russell Brain referred to the biochemical work which had been done at the London Hospital and particularly to estimations of the blood-cholesterol of epileptics Cholesterol, he said, constituted one-eighth of the solids of the brain by weight, and it was thought there might be a relationship between epilepsy and the metabolism of cholesterol. In women there was an abrupt fall in the blood-cholesterol during the days immediately preceding menstruation; sometimes the amount fell to half the normal during the catamenia, and this was attributed by one worker to formation of the corpus luteum Women subject to epilepsy were most likely to have fits while their cholesterol was at its minimum Dr Brain showed a comparative table to demonstrate that on the average the figure for cholesterol was lower in epileptics than in normal people, whilst the maxima in both showed even greater differences In eight cases examined in this way it was found that an attack was preceded by a prolonged fall in the level of the blood-cholesterol, the observations were taken hourly After an attack the cholesterol content showed a substantial rise Cholesterol was a large fleshy glands which caused symptoms and could be enucleated without injuring mesenteric vessels, (5) to drain abscesses formed by the breaking down of caseous glands

DR MAURICE A CASSIDY expressed his agreement with Mr. Carson that tuberculous enteritis seemed to be less common of recent years than formerly; this he attributed partly to a diminished incidence of all forms of tuberculosis and the more general segregation of tuberculous patients in special hospitals and separate departments One result of this was a great loss of valuable clinical material to the general physician and the student Tuberculous peritonitis did not seem much diminished, but there was a change recently in the sex-incidence. In a series published by Osler there were 131 females to 60 males, whereas in a series at St Thomas's Hospital there were 54 males, 45 females He considered the outlook in uncomplicated tuberculous peritonitis uniformly good, he told his students that if they had to be infected with Koch's bacillus the site to select was the peritoneal cavity, as it gave the best chance of complete recovery without resultant disability In a series of 267 cases at St Thomas's the mortality was only 9 7 per cent and most of the fatal cases died from such conditions as perforation or obstruction, in some other viscera were involved Some young persons had abdomens which were symptomless yet were the seat of tuberculous tumours, and they had been seen to grow into healthy adult life after but little treatment. Pain in tuberculous peritonitis was a very variable symptom, it might be absent or of any degree of severity. Either constipation or diarrhœa might occur, the latter usually being associated with the passage of fatty stools, due probably to defective absorption following obstruction of lacteals by tuberculous mesenteric glands In the first 24 hours this peritonitis might be mistaken for appendicitis and surgical interference was harmless if the mesenteric glands were left alone. In adults the more chronic conditions might be confused with carcinoma, the presence or absence of pyrexia was not helpful either way, and there seemed no reason why a tuberculous patient should not develop carcinoma Cirrhosis of liver might be mistaken for tuberculous peritonitis, the former was sometimes met with even in young children It was agreed that simple laparotomy in tuberculous peritonitis produced a rapid improvement when progress had been slow on medical treatment Apart from this simple opening of the abdomen, the treatment of such cases should be on sanatorium lines, and he was quite satisfied as to the marked benefit produced by sunlight and by artificial light Probably intestinal tuberculosis was a more common early complication of pulmonary tuberculosis than was usually supposed It could be diagnosed at an early stage, and if efficiently treated recovery was by no means exceptional In a large series only 7 per cent were abdominal primarily, whereas in 80 per cent of fatal cases of the abdominal disease there was also pulmonary tuberculosis The number of tubercle bacilli found in specimens of the stools of patients seemed to be in direct relation to the quantity of bacilli-bearing sputum swallowed

The PRESIDENT, in a general review of the subject, said he agreed that what was termed caseous peritonitis was probably due to the bursting of, or the infiltration of the peritoneum by, a caseous gland, and in some cases the result was a fæcal fistula When he was seeing many children he found the mortality of these cases was very small Septic peritonitis was a much more serious disease and caused more intense illness than the peritonitis due to tubercle with ascites He did not agree with Mr Carson that adhesive peritonitis represented a healing form, he regarded these cases as very malignant, and operative attempts were apt to prove fatal. It was very common to see children with tuberculous mesenteric glands He ascribed the symptoms mentioned by Mr Carson as associated with tuberculous glands to cases in which there were mechanical complications connected with those glands, such as kinks or attachments And he had not seen intussusception except where glands were affected Frequently tuberculous peritonitis in the male was associated with tuberculous epididymitis

MR. CECIL ROWNTREE pointed out that Mr Carson's work on the clinical side had been confirmed by the experimental work of L R Braithwaite (Leeds) on kittens It was possible to meet with cases having tuberculous mesenteric glands as their only diagnosable disease The cases were not easily recognised, the children were infected at about 3 or 4 years of age, when they came under the care of physicians He believed all the cases had some increase of temperature during the actual period of invasion Afterwards they became better, but did not get well, they were weak and unable to absorb fats for the reason already given A surgeon was called later, either because complications had developed or at school age because there were attacks of pain, either following games or spontaneous Many cases were diagnosed as appendicitis, the appendix was removed, and sometimes the patients got better If they did not a skiagram was taken and revealed masses of calcified mesenteric glands which were probably responsible for the perpetuation of the symptoms When there were symptoms he considered it was the surgeon's duty to remove the glands

DR JOHN A RYLE dealt with the early recognition of mesenteric glandular tuberculosis For this early condition there was no reason for seeking the aid of the surgeon, as, given suitable environment and care, recovery ensued without him He stressed the loss of energy and initiative at this stage, remarking that if such a child wished to go to bed before his usual time it was a very suspicious sign of early tubercle The temperature would usually be found to be 99°–100° F, taken carefully in the rectum When pain was asked about, the child placed his hands on both iliac regions Associated with this was often a mild but very chronic diarrhœa, the stools being unformed rather than actually watery An adult with this condition had also severe anæmia, which was very helpful in diagnosis A skiagram of the chest would probably reveal suspicious shadows at the root of the lungs

MR W E TANNER supported Mr Carson's views If the symptoms were severe enough to call for laparotomy and large masses of calcified glands were found, it was important to excise those glands, he had usually found the enlargement localised to one group

MR MORTIMER WOOLF, speaking of ileo cæcal tuberculosis, said that two years ago he had under his care a man who had been operated on in another hospital, a tiny incision having been made over the anterior superior spine, and it was said the surgeon had merely put in a finger and then closed the wound Nine months later he was sent to the speaker as he had been having pain, and he found a large tumour, he thought probably due to ileo-cæcal tuberculosis He did a lateral anastomosis between the ileum and the ascending colon The man was now well, having lost his obstruction, but there was still some tumour there He, the speaker, wondered whether it was always necessary to do an extensive operation—whether a lateral anastomosis would not sufficiently answer the purpose And he raised the question whether the enlarged glands were always necessarily tuberculous, surely it was possible for the enlargement of some of them to be of inflammatory type On to the latter there might be tuberculous disease grafted subsequently

Reply

MR CARSON said that for a long time he thought with Mr Warren Low that pain meant complication, because in two cases within a short time spasm and intussusception took place before his eyes on the operating table But he now thought these cases had irritation of the nerve-supply to that portion of the gut, and that in consequence there was intense spasm of circular muscle-fibres If he found a weird over a crown sized area over the insertion of the deltoid There was marked deviation to the left of the spine of the seventh vertebra, constant in all positions, but without any pain, tenderness or limitation of movement Ophthalmoscopic examination suggested a past papillitis The Wassermann reaction was negative and the X ray films revealed nothing more than a diminution in the joint space between the fifth and sixth vertebræ, possibly due to the curvature

The only adequate explanation, said Dr Eastwood, appeared to be that there was rupture or stretching of the fifth cervical nerve at its junction with the sixth Operation was proposed

The PRESIDENT said that in his experience operations in cases such as this were very unfavourable Mr W H OGILVIE and Mr C P WAKELEY agreed, and remarked on the amazing extent to which recovery often took place after about a year's rest

Paresis of Hand with Cervical Rib and Sprengel s Shoulder

Dr SAXBY WILLIS and Mr OGILVIE showed a woman of 56 with radicular paresis on the right hand associated with abnormal bone formation of the seventh cervical vertebra and Sprengel's shoulder She had noticed for six years only an inability to extend the metacarpophalangeal joints There was wasting of the palmar interossei and reaction of degeneration in the common extensors, but no sensory changes The X rays showed very large transverse processes on the seventh cervical vertebra and a rudimentary first dorsal rib only on the right side They proposed to explore and see if the pressure on the seventh nerve-root could be relieved There might be fusion of two transverse processes narrowing its outlet

The PRESIDENT agreed that operation would be fully justified

Dr WEBER pointed out that the extensions on the seventh cervical vertebra corresponded with what was called the "short type" cervical rib, a type which was most often associated with paresis and symptoms which did not appear until the "early degenerative" stage of life when there was a tendency to kyphosis He did not think the case should be operated on

Acromegaly

Dr WILLIS showed a woman of 28 who had acromegaly of possible traumatic origin, with proliferative changes in the interphalangeal joints of the left thumb and middle finger

The accident occurred seven years ago, when she had had concussion following a fall from a trap She made a good recovery, but four years later noticed a tendency to painful swelling of the hands and feet, and, a year later, pain in the jaw The menses ceased two and a half years ago She had had severe frontal headaches since childhood, but these had been worse in the last 18 months She now had acromegalic facies, hands, and feet, with a chronic proliferative bone change in the proximal interphalangeal joint of the left middle finger and both joints of the left thumb, the terminal phalanges of all the digits were enlarged There was no optic atrophy, but a restricted field of vision in the upper temporal quadrant of the right eye The pituitary fossa was seen by radiography to be much enlarged and there was increased sugar-tolerance

Dr E STOLKIND questioned whether this were indeed a case of acromegaly there was no change in the tongue, which was the earliest symptom in 95 per cent of cases His view that there was no evidence for the traumatic origin was supported by Dr WEBER

Ulceration of Lip in Leukæmia

Dr W A MILLIGAN shewed a woman of 47 with (?) tuberculous ulceration of the lip associated with lymphatic leukæmia There was a history of familial tuberculosis and of a sinus under the chin which had discharged for a long time In June of last year she had noticed a pimple on her lower lip which gradually formed an ulcer and spread to involve the whole surface of the lip It was very painful In addition she noticed enlarged glands in the axilla and groin The blood-count showed 96 6 per cent of small mononuclears.

The PRESIDENT said that it was very hard to say whether this lesion were tuberculous, and quoted a case of very acute and rapidly fatal ulceration of the anus and another of severe Vincent's angina in leukæmia

Dr WEBER said that very severe inflammation was well known in acute leukæmia but this case was chronic If it were tuberculous it would probably have blocked the lymphatics and produced a septic elephantiasis—Dr H M ODDY, remarking that an air-cooled mercury-vapour lamp had improved the condition slightly, said that pressure was needed as well.—Dr L S T BURRELL said that he regarded the case as one of lowered resistance due to leukæmia, allowing the formation of a simple ulcer He had seen very bad oral conditions in lymphatic leukæmia A tuberculous lesion would have responded more quickly to treatment by light

Heart-block

Dr B T PARSONS-SMITH showed a man of 70 with complete heart-block

The patient had always smoked excessively, but had been a very moderate drinker and had had good health except for occasional bronchitis and one attack of pneumonia in 1918 Eighteen months ago he began to have frequent syncopal seizures with bradycardia The heart was found normal in size with a feeble apical impulse and sounds varying in intensity There was a soft systolic murmur at the apex The pulse was 30, the blood pressure 180/90 The presence of complete heart-block was confirmed by electrocardiographic and polygraphic tracings Since then the patient had gradually improved and resumed a quiet daily routine The syncopal attacks ceased after a course of adrenalin injections The block persisted, but caused no symptoms except occasional giddiness and sensation of heavy beating at night After a course of barium chloride (½ gr b d) the pulse-rate had increased to 40/50, and about two months ago rose to 72 with restoration of the normal rhythm. Just before Christmas the heart-block recurred but without symptoms This was ascribed to the barium, and suggested further inquiry into its dosage and combination with other drugs

Aleukæmic Lymphadenosis

Dr WEBER showed a Polish Hebrew tailor of 60 with symmetrical, general, moderate enlargement of all the superficial groups of lymphatic glands

The patient had had no previous illnesses and no symptoms There was no evidence of abnormalities in any viscera except some shadowing in the radiogram of the posterior mediastinum and hilus regions of the lungs The blood pressure was 145/95 There was no albumin or sugar in the urine The Wassermann and Meinicke reactions were negative and the Pirquet cuti-reaction positive The blood count showed 100 per cent hæmoglobin, 10,300 white cells, consisting of 49 4 per cent polymorphs (0 8 per cent young forms, 1 1 per cent with rod-shaped nuclei, 47 5 per cent with segmented nuclei) 21 4 per cent small lymphocytes, 21 per cent large lymphocytes, 1 2 per cent monocytes, 0 2 per cent basophils, 0 6 per cent. eosinophils, 3 2 per cent lymphoblasts, no myelocytes

Dr Weber gave this case the name of chronic lymphatic aleukæmic lymphadenosis because there was no great increase in the total white cells, but only a relative excess of lymphocytes. The generalised glandular enlargement and absence of blood-eosinophilia ruled out the diagnosis of Hodgkin's disease There might be a danger that active treatment by X rays would convert a chronic inactive case into an actively progressive one, he thought it was best left alone

Vascular Tumour of Meninges

Mr WAKELEY showed three cases The first had been shown in November as a tumour of the skull with definite evidence of a left-sided spastic hemiparesis with Jacksonian seizures Radiography revealed an area of rarefaction corresponding to the termination of the middle meningeal arteries At the operation the blood pressure had fallen to 80 mm. Hg when the osteoplastic flap was turned down, this should be an indication to stop any operation on the brain and the second stage was therefore postponed for ten days, when a large vascular tumour on the outer side of the dura mater and growing from a Pacchionian body was excised, substance whose physiology was largely unknown, but it was hoped that something definite would emerge from the present research

Dr S A KINNIER WILSON pointed out that epilepsy was not a disease entity but purely a symptom, recurrent fits accompanied many morbid processes such as cerebral tumour, neurosyphilis, arteriosclerosis, and many toxic and inflammatory conditions Epileptic symptoms were not themselves a sign of disease Convulsions could be brought about experimentally in animals which were anatomically and physiologically normal Many movements in fits were purposive in character, though they were outside volitional control There were cases in which not more than one or two fits occurred, and those fits therefore could not be looked on as manifestations of disease A fit was the discharge, the setting free, of accumulated nervous energy in healthy neuromechanisms Some fits were clearly cortical, some were caused at an obviously lower level, pontine or spinal, and he did not see why there should not be visceral fits The profession remained in ignorance, however, of the circumstances under which accumulated nervous energy was discharged, and this was the crux of the problem

Dr T GRAINGER STEWART said it was everyone's duty to try to help in the solution of this difficult question Probably all members in their practice saw cases which fell into certain groups, cases in which the association of the attack with certain physical changes was constant In seeking for the cause of epilepsy he thought it unwise to regard the disorder as a disease, it was a manifestation of something which was abnormal He advocated the collection and investigation of cases whose clinical features and physical changes were demonstrably similar During attacks some patients, for instance, developed sweat having a very pungent smell One case was that of a young woman, a teacher, who had been exposed to air-raids, which might be considered a psychical cause, she had never previously had epilepsy. Before a fit she had most offensive sweat, and after the attack had developed, instead of being fresh-complexioned, her skin became greasy, sallow, and blotchy, and was overspread with a layer of perspiration Her doctor said that previously her pulse had been normal All the cases he had had in this category recovered on being treated with belladonna None had had a recurrence during three years, and the longest time it was necessary to treat with belladonna was six weeks He held the view very definitely that not only one cause was at work in epilepsy, but there was an infinite variety of causes, acting in persons otherwise normal and healthy

Dr G. A. SUTHERLAND said that his difficulty had been in definitely recognising cases of true epilepsy He had under care a boy, aged 12, whom he first saw five years ago on account of petit mal, a diagnosis he had confirmed The boy had suddenly screamed and fallen unconscious, then was drowsy, and recovered He had had five such attacks but Dr. Sutherland now felt he had not had petit mal at all He thought that sufficient attention had not been devoted to the circulation in epileptic patients, though both Sir William Gowers and Sir Clifford Allbutt had said that there were no changes in the circulation Some attacks, he felt convinced, were due to cerebral anæmia In these the attack might be only mild, leading to syncope, or more severe, to the accompaniment of convulsive movements Another kind of attack was due to disturbances in the conducting tissues of the heart, and the change might take the form either of extreme tachycardia or severe bradycardia The attacks associated with heart-block were not due to a slowing of the heart beat, but to a standing-still of the ventricle for a few seconds These cases bore a close relation in manifestation to cases of epilepsy

Reply

Dr AIDREN TURNER, in reply, remarked that his chief submissions had not been seriously questioned With reference to Dr Sutherland's observations, in addition to arrest of ventricular action at the outset of a fit, a fall of blood pressure had also been noted Some authorities were inclined to attribute the convulsive seizure to arrest of cerebral circulation, but he was very sceptical as to that, and looked upon the arrest of the circulation as a consequence of the seizure He felt that little light had so far been thrown on the problem by the laboratory researches into the biochemistry of epilepsy, especially in France and America The charts shown by Dr Russell Brain were very interesting, but in some of the patients concerned there was a definite fall in the cholesterol content without any fit having followed And he felt a difficulty in regard to the attempt to harmonise experimental induction of convulsions in animals with what happened in the human epileptic patient The important point was whether in those animals anything like an attack of petit mal was produced, as that was the important manifestation of epilepsy, though admittedly grand mal was more spectacular

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CLINICAL SECTION

EXHIBITION OF CASES AND SPECIMENS

A MEETING of this Section was held on Jan 14th, Sir HERBERT WATERHOUSE, the President, in the chair. A number of cases were shown

Thrombocytopenia Purpura Hæmorrhagica

Dr BERNARD MYERS showed a woman of 30 who had been seen by the Section several times before as a severe case of essential thrombocytopenia purpura hæmorrhagica She had started to bleed at the age of 12, but the first large hæmorrhage had been a menorrhagia at 24 All the usual means of treatment, such as calcium, sera, and blood transfusion had failed to effect more than a slight temporary improvement She had the typical reduction of blood-platelets, which were often absent altogether, the coagulation-time was normal, which differentiated her condition from hæmophilia, her bleeding-time was 15 minutes and the capillary resistance test was positive Splenectomy as recommended by the Section had now been performed, since when the patient's health had been excellent in every way and there had been no more hæmorrhages or purpuric spots The blood-platelets had returned to normal soon after the operation, and the bleeding time and capillary test were now normal Dr Myers remarked that there must be many cases of menorrhagia of this type going about unrecognised

The PRESIDENT, in answer to a question by Dr F PARKES WEBER, said that in the only fatal case of splenectomy he had known the patient had died of thrombosis in the splenic vein spreading to the superior mesenteric The operation might be extremely simple or very formidable, and it was difficult to forecast its result He regarded slipping ligatures as due to bad surgery

Case for Diagnosis

Dr SIBYL R EASTWOOD showed for diagnosis a case of left-sided muscular wasting of the type of Erb's palsy.

The patient was a boy of 16 who had been brought to hospital last August after a bicycle accident He had severe concussion and several bruises and abrasions, there was no fracture Four days later, when the symptoms of cerebral irritation had passed off, inability to abduct the left arm was noticed and had persisted Since then the shoulder had been kept abducted and massage and electrical treatment had been applied, but there had been no improvement except a very slight return of sensation

At the time of showing the boy held the shoulder on the affected side higher than the other, giving an appearance of some loss of substance in the left trapezius, but the muscle acted strongly and responded to faradism There was atrophy and paralysis of the left supraspinatus, infraspinatus, deltoid, biceps, coracobrachialis brachialis anticus, supinator longus, and clavicular portion of the pectoralis major muscles The slight relative weakness of other muscles was no more than might be accounted for by partial disuse There was diminished sensibility to touch, pain, heat, and cold

Reviews and Notices of Books.

HISTORY OF MEDICINE.

An Introduction to the History of Medicine from the time of the Pharoahs to the end of the Eighteenth Century By CHARLES GREENE CUMSTON M D, Lecturer on the History of Medicine and Medical Philosophy in the University of Geneva With an Essay on the Relation of History and Philosophy to Medicine by F G CROOKSHANK M D London. Kegan Paul, Trench Trubner 1926 Pp 390 16s

THE author of the ideal history of medicine would have to be one whose years were those of Methuselah whose knowledge of languages was equal to that of Mezzofanti and whose mental equipment was that of St Thomas Aquinas, Newton and Laplace combined Dr Cumston has attempted no more than an introduction to the subject, but in this introduction he has succeeded in laying foundations upon which those who care to go more deeply into the subject may build an elaborate edifice of knowledge In his first chapter he shows the importance of an understanding of the way in which our modern knowledge of health and disease grew like some great forest tree from very small beginnings, and all of us when we consider the discoveries and the mistakes of our ancestors, may well remember the dictum, "Do not despise the bridge which carries you across" Chapter II deals with Egyptian Medicine and Chapter III with Hindu Chaldean and Persian medicine, while in Chapter IV Dr Cumston discusses Homeric medicine and the views of the early Greek philosophers The next two chapters are concerned with Hippocrates and Hippocratic medicine various extracts from the Corpus being given which should certainly lure the reader to make further investigation into Hippocrates by way of the excellent translation now appearing in the Loeb library Incidentally, Dr Cumston would have done better to give his Hippocratic references more fully; he has given all his Homeric references in full, and a knowledge of Homer is far more widespread than is that of Hippocrates The direct successors of Hippocrates, the School of Alexandria, Erasistratus and Herophilus the Empirics and other schools and sects are described; Soranus is next mentioned, and the work of Caelius Aurelianus is very fully considered This writer, whose date is variously given as from the first to the fourth century A.D., is the author of a work upon acute and chronic diseases, which has come down to us in very bad Latin, but valuable in that it preserves many of the writings of his predecessors, he also made a not very accurate translation of Soranus Galen and the practice of medicine at Rome are discussed in Chapters XI and XII, and are followed by a chapter on Islamic medicine, which is perhaps the best in the book, although Dr Cumston might have made more of that great Nestorian school of medicine at Gondisapor whose researches were so valuable to the Arabs Chapters XIV, XV XVI deal with mediæval medicine including the schools of Montpellier and Salerno together with medicine and her handmaids in the sixteenth century, the three following chapters consider medicine in the seventeenth and eighteenth centuries Among the sixteenth century physicians Dr Cumston rightly gives much space to one who is too little known—namely Jean Fernel, 1497–1558 one of the earliest composers of a System of Medicine. Bichet is practically the last-mentioned physician and the book ends with a chapter upon the Evolution of Therapeutics

Dr Cumston's book is one which may be recommended, together with Dr Garrison's to all who wish to know something of the history of medicine

DISEASES OF THE HEART AND LUNGS

A Handbook for Nurses By A I G MCLAUGHLIN, M B, Ch M Syd Assistant Medical Officer Tuberculosis Dept, St Thomas's Hospital. London: Faber and Gwyer 1926 Pp 185 4s 6d

WITH the widening of the scope of their examinations nurses are finding that general text-books hardly cover the ground and the numerous small special system volumes which have been appearing recently are likely to be welcomed Dr. McLaughlin's book is a valuable addition to these He deals first with the anatomy and physiology of the heart and lungs and then discusses diseases of the heart and blood-vessels, and those of the respiratory system in detail, pneumonia and pulmonary tuberculosis being given separate chapters A section on surgical procedures contains a description of the principal minor and major operations on the chest, it is unfortunate that there is no mention of Burrell's aspirating apparatus since nurses often seem to find difficulty in understanding how it works There is an exceptionally good paragraph in which "heart attacks" are classified and described

SURGERY OF THE STOMACH

Chirurgie de l'Estomac Part I By HENRI HARTMANN With the collaboration of NICOLAE BARBILIAN, R BENSUADE CHABRUT-ASTAIX, DE POLIAKOFF, and ROBERT TARJAN Paris: Masson et Cie 1926 Pp 336 6s 8d

THIS is the first part of an extensive work on the surgery of the stomach, in which all aspects of the subject are treated in some detail The earlier part of the book describes the examinations necessary, including gastroscopy; for this the author predicts a great future, although he regards it as rather a dangerous method at present, only to be used when other methods of examination, apart from exploratory laparotomy, have failed to lead to a diagnosis A long section on the technique of operations on the stomach includes pre- and post-operative methods Here we find statistics collected about such rare operations as total gastrectomy and cardiectomy. The chapter on perforated ulcers of the stomach is particularly good Prof Hartmann rejects gastrectomy in these grave cases, believing that the mortality of this operation is twice as great as that of simple suture or suture combined with gastro-enterostomy a method which he believes gives results uniformly good All through the book cases are described which illustrate the points brought out and the whole forms extremely good reading The problems surrounding gastro-enterostomy are discussed in critical fashion We note that the mortality in the hands of Prof Hartmann and his associates has been 10 per cent in benign conditions, and the cause of this mortality is set forth in a section which is well worth perusal On the whole Prof Hartmann thinks gastro-enterostomy is an extremely satisfactory operation for ulcer wherever situated, for of 488 cases only 10 required a subsequent operation A clear account of gastro-jejunal ulcer and its treatment is included and an important section on cancer of the stomach where 100 cases are reviewed. The results of the excision of cancer have been particularly good

Altogether this book is a satisfactory achievement An enormous amount of literature has been examined and the subject has been treated from a judicial standpoint

ELEMENTS OF HYGIENE AND PUBLIC HEALTH

Second edition By CHARLES PORTER M D B Sc, M R C P Edin, Barrister-at-Law Medical Officer of Health Metropolitan Borough of St Marylebone London Oxford University Press 1926 Pp 425 14s

Dr Porter has the gift of writing in a bright and interesting way about subjects which do not lend themselves readily to such treatment The first edition of this book published in 1917, met the need for a work on public health more detailed than the elementary ones of which there is no lack but smaller and more readable than the tomes required by post-graduate students of hygiene and public health officials Both in its original and its newer form, Dr. Porter's book caters for medical students and also for practitioners who wish to familiarise themselves with public health practice Its revision is, however, only and bleeding was stopped by the diathermal cautery. The wound healed well and the patient was now able to walk, but still dragged his left leg.

Cirsoid Aneurysm

The second case was a cirsoid aneurysm of the right suprascapular artery in a man of 66 who first noticed a lump six months ago. The pulsating swelling lay below and slightly outside a congenital nævus and measured about 3 inches. Running down and slightly outwards from this was a dilated, tortuous thickened vein. There was marked pulsation and thrill and a diastolic bruit all over the swelling. These were eliminated by pressure on the subclavian artery, and removal after temporary ligature of this vessel was the treatment proposed.

The PRESIDENT and Mr. OGILVIE concurred as to the importance of temporary ligature, as the bleeding from this type of tumour might be appalling.

Paget's Disease with Nephrolithiasis

The third case was one of Paget's disease with renal calculus in a man of 67.

Enlargement of the head had been noticed six years and bowing of the legs four years ago. Twenty-six years ago some renal calculi had been removed from the left kidney and for ten years the patient had had periodical attacks of pain in the left loin. Last November he had a typical renal colic followed by swelling of the right testicle. Radiography showed four large stones in the left kidney and cystoscopy revealed a cystitis and a little pus exuding from the left ureter. The urea concentration of the right kidney was 2·74 per cent., so nephrectomy was performed. Owing to the kyphosis the last rib almost met the iliac crest, and made the operation difficult, but recovery was uneventful.

In reply to a question Mr. WAKELEY said that he did not mean to suggest any connexion between the two conditions, but Dr. E. I. SPRIGGS remarked that recently an attempt had been made to ascribe all these conditions to an infective origin, and quoted a case of a patient under his care in whom the bone disease had distinctly improved after the removal of a chronically inflamed appendix.

Mr. OGILVIE showed a case of

Tumour of the Calf

At the age of 19 (40 years ago) the man had twisted his right leg and been three months in hospital; there had been no fracture. During the next 12 months a lump slowly appeared in the left calf and since then had given no trouble. The swelling was large, rounded, placed deeply in the gastrocnemius, elastic but not fluctuating, and not tender. It was probably a thick-walled cyst of traumatic origin. Mr. Ogilvie compared it with the cysts due to rupture of the rectus in typhoid, and pointed out that it must be a real tumour, as inflammatory fibrosis would have diminished in size after all that time.

The CHAIRMAN remarked on the size of the lesion and said he had a strong suspicion that these lesions were all really sarcomata. Cysts about the knee were liable to travel down the calf, and this might be an example.

Mr. OGILVIE agreed that it might be in the nature of a Baker's cyst.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH

AT a meeting of this Institute held on Dec. 21st last Major WALTER ELLIOT gave an address on

CLINICAL RESEARCH IN ITS RELATION TO THE PUBLIC HEALTH SERVICES

Expressing his conviction of the valuable results which must accrue from the meeting of public health administration and general practitioners he laid it down as a fundamental rule that every respect must be paid to the opinions of those in touch with the living being. The fact that for the first time in history research had figured in the agenda of the Imperial Conference which had been held during the autumn marked a distinct stage in the attitude of our administration to it. But there was a danger that too much reliance was being placed upon the word "research" and that anyone getting into difficulties had only to pronounce the magic word to have these difficulties overcome. There was also the danger of clinical research coming to be looked upon as something apart from the practice of medicine, whereas it should grow out of the daily work of practitioners. It required observation, intuition and imagination, just as much in the clinician in his daily round as in the laboratory worker.

In the relationship of clinical research to the public health services there was the danger that the enormous machine of administration might prove of more injury than service to the work of people who were, so to speak, on their own and uncoördinated. One way to avoid this danger was to imbue the minds of the administrator and the clinician with a proper conception of the work and difficulties of research. The administrative worker must come in contact with the growing process which research represented.

The sum of £2,860,000, said Major Elliot, had been spent in Scotland on feeding at the public expense during 1926, and the State had been devoting particular attention to the problems of nutrition as affecting child welfare, particularly with regard to rickets. Public authorities were beginning to spend large sums on irradiation. Expenditure on treatment by cod-liver oil, however, might be counted in pence against shillings for treatment by light, and authoritative scientific opinion might thus be of immediate financial importance. The problem was fully discussed in the Scottish Board of Health Report for 1925 and a Conference had been called in Edinburgh in July, 1926, by the Board of Health with the object of enlisting the physiologist and biochemist to serve the clinical man who had for many years worked at the problem. The idea was to give the clinician the actual living work of the scientist and not the published results alone. This was an attempt to yoke the science and art of medicine together to this practical problem in Scotland and it was an example only. The general questions involved were of great interest and importance.

The relationship of research and administration had been considered at the Imperial Conference, and Lord Balfour had made a preliminary survey of the problem, which though it dealt with industry and agriculture rather than medicine, was largely applicable to the question under discussion.

"Can we suppose," said Lord Balfour, "that either money or organisation can increase the supply of original scientific genius, or direct it, when found, into utilitarian channels? It is plainly impossible. Genius cannot be made to order nor discovered by rule. The best we can do is to provide fitting opportunities for its exercise when we are fortunate enough to find it. Yet I am convinced that much may be accomplished if we are not too ambitious. How, then, is it possible for the Conference to assist? It cannot give money; it cannot impose a policy. Let us cultivate easy intercourse and full coöperation. Investigators in the same intellectual field, though far separated in space, will work as partners. Overlapping, and all the intellectual waste that accompanies overlapping, will be greatly diminished; and considered judgments about the gaps in our knowledge which most urgently require to be filled will follow as of course."

In conclusion Major Elliot said that public health work would increasingly concern itself with research; that control, especially superimposed control, would of necessity fail, and opportunities for work were the most that organisations could hope to offer; and that the independence of scientific institutions ought to be jealously guarded so as to provide the necessary check on the rapidly increasing undertakings of State research.

THE LANCET.

DON: SATURDAY, JANUARY 22, 1927.

HEALTH INSURANCE FUNDS [1]

second valuation of the assets and liabilities ieties approved under the National Health nce Acts has given the Government Actuary portunity of setting out the financial basis of alth insurance scheme which granted certain ons to be mentioned later, is one of undoubted h. The audit itself has been laborious enough re are more than 8000 societies (reckoning the ies of large societies as separate units) com- some 15 million members, and the valuation ken account of the sex, employment, present nd probability of survival of each of these ers, as well as of the fact that the amount of ss increases among them (from one week at the to 15 weeks in the year at the highest) as age ses, while the number of persons entitled to t as regularly diminishes Such a valuation, gh based on experience of the past, relates future, and involves the recognition and con- tion of all the risks and changes which the may bring The capital credits of all these es at the valuation date (the last day of 1922 e smaller societies, of 1923 for the larger) ited to nearly £190 million, of which £5 8 has been allotted to contingencies and £2 4 to administration The total surplus at me date was £42 4 million, being an average of £2 16s. 8d a member Not that all the es were in the happy position of making a on their labours, for 134 of them, comprising 0 members, showed an average deficiency of ember—it is one of the demerits of the present that certain groups of insured persons through lt of their own obtain less benefits than do , although, of course, no member is deprived minimum benefit guaranteed to him under cts The existence of a profit of well over illion on the working of the health insurance during the first 11 years of its existence is g evidence of the acumen of those who drafted nd secondarily, of the remarkably high level od health among employed workers The sh group of societies shows up the best in this t, Scottish, Northern Irish and Welsh following scending order As has long been surmised, it insured men who bring profit into the scheme, uring the inter-valuation period the cost of ess and disablement benefits yielded an average on the estimates of £1 7s 6d a head in the of men and of barely 6s a head in the case of en, while a group such as the Industrial Assur- and Collecting Societies, containing 43 per cent omen members, has a small disposable surplus ared with the Trades-Union group, containing 19 per cent of women workers—only about alf in fact

is not the intention of the Commissioners to bute the whole of this enormous surplus during the next five years Sir ALFRED WATSON is a cautious person and foresees the unlikelihood of so large a balance being available five years hence, and he counsels not to give more additional benefits than there is reasonable expectation of maintaining The total distributable sum is therefore fixed at £27 million, in which 97 per cent of the total members are entitled to participate of this sum £18 3 million will be absorbed by additions to the statutory money benefits, leaving £8 8 million for additional benefits in *other forms* or approximately 3s 7d per insured person per year In the case of more than one-half of the total insured population the surplus available for distribution is sufficient to provide additional sickness benefit of 5s a week (it is now 15s for men and 12s. for women) with corresponding increase in disablement and maternity benefits leaving 5s 7d. a year for other forms of benefit Disablement benefit has been making large inroads on the fund during the inter-valuation period, while the claims of men rose from 42 to 74 per cent of expectation, it increased in the case of women from 81 to 146, the excess in the claims of women being the explanation of the inferior position shown by women's societies in the valuation The financial basis is now to be altered in accordance with this experience so as to provide for an expenditure on sickness and disablement in the case of women at a rate 60 per cent greater than on the basis for men Although there is no occupational classification of insured persons certain types of occupation (strongly represented in certain societies) have been shown to carry heavy sickness rates but the valuer explains that it is in the more arduous occupations that capacity for work has to be measured by more exacting standards of physical fitness The valuation also throws some light on the relation of child-bearing to employment, for the birth-rate among married women who are industrially employed is seen to be little more than one-half of that among the whole class of married women The figures also prove an average unemployment during the three years 1921–23 of 16 per cent of the whole membership These are some of the facts which will interest medical men and should induce them to read as a whole a report which so clearly exposes a complex financial scheme

SIR ALFRED WATSON concludes that there is a reasonable expectation of the continuance of additional benefits, provided that certain conditions are fulfilled . first. that a high standard of administration by the approved societies is maintained, secondly, that the full coöperation of the medical profession in regard to the certification of claims is ensured; and, thirdly that such unfavourable visitations as that which has been encountered in the present year prove to be transient Obviously two of these factors are not within the competence of the medical profession to arrange In regard to the certification of claims, there is the paradox that during the recent period of industrial strife, although there was no manifest increase of general sickness, there was a huge relative increase in sickness benefit, some societies paying three, four, or even five times as much in the 1926 period as in the corresponding period of 1925 That is a problem which did not begin in May, 1926, nor did it end with the resolution of the mining dispute The experience of the old friendly societies was that every period of temporary distress in the economic world meant an increase of sickness claims Unemployment insurance, poor relief, and child welfare expenditure all showed simultaneous increase, and it is obvious that greater partially successful The changing aspects of hygienic teaching can hardly be reflected in the later editions of any such work without drastic rearrangement of its contents For instance, it cannot be said that present-day ideas as to ventilation, or the significance of accessory food factors and the balance of amino-acids in proteins find adequate expression in the chapters dealing with these subjects, and it is disappointing that the description of various means of disinfection is not accompanied by any discussion of the value or importance of disinfection as usually practised Again, it would have been worth while, in our opinion, to devote a little space to a judicial consideration of the extent to which domestic refuse is, or is not a real danger to health The treatment of special schools is, to say the least of it, perfunctory We notice, too, the retention of the old family names for the varieties of rats There are also some minor inaccuracies It is not strictly correct to say that Orders of the Ministry of Health are merely instructions to local authorities, or that the heat obtained from electric fires is almost entirely radiant, or that payment of emergency fees under the Midwives Acts by local authorities is optional These criticisms are made in no captious spirit, but since we believe that public health policy must depend to a great extent on the enlightened views of practitioners, to whom the public look for guidance on matters affecting both their own health and that of the community, we feel that space devoted to descriptions, diagrams, and illustrations of drains, traps, and sanitary conveniences might well be sacrificed to the discussion of the fundamental problems of hygiene The general ground of public health, however, is well covered in this book, and it can be confidently recommended to students who wish to provide themselves with a text-book which will be useful for reference when they enter the general practice of medicine.

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[1] tional Health Insurance Report by the Government y on the Second Valuation of the Assets and Liabilities proved Societies Cmd 2785 H M Stationery Office 2s 6d

THE ENDOCRINE ORGANS

Part II. Second edition By Sir E SHARPEY-SCHAFER, LL D , D Sc , M D , F R S , Professor of Physiology in Edinburgh University. London Longmans, Green and Co , Ltd 1926. Pp 118

SINCE the new edition of The Endocrine Organs (Part I) was published in 1921, this supplementary volume has been eagerly anticipated Prof Sharpey-Schafer is probably better qualified than is any other man to speak with authority upon this subject, and in these publications he not only collects the extensive literature dealing with endocrine physiology, but he edits it with a critical eye

This volume, which fully maintains the high standard of its predecessor, deals with the pituitary, pineal, alimentary canal, pancreas and sex glands There is also included a small supplement to Part I , giving details of recent advances made in our knowledge of the thyroid, parathyroid, and suprarenal capsules For example, the question of the differentiation of exophthalmic goitre and toxic adenomatous goitre is discussed, and the value of iodine in the treatment of the former mentioned Reference is also made to the experiments of Collip with parathyroid extract Prof Sharpey-Schafer points out that this work has placed beyond doubt the question of the activity of this extract in regulating calcium metabolism and especially the percentage of calcium in the blood In the main part of the book much space is devoted to the pituitary body The early chapters deal with the morphology and general and microscopic structure of the gland, which is described as being made up of four parts, the anterior, tuberalis, intermedia, and nervosa Particular attention is directed to the pars tuberalis and pars intermedia Ten chapters are allotted to the action of extracts of the posterior lobe on the various systems of the body, and others are concerned with the clinical syndromes associated with pituitary disease and with the relation of this gland to the other endocrine organs Finally, the therapeutic uses of pituitary extracts are discussed Many of the problems which arise in connexion with pituitary function must be considered as still undecided, and where this is so Prof Sharpey Schafer gives a full critical review of the reliable evidence Moreover, his criticism is always constructive A good example of his method of dealing with controversial questions occurs in his presentation of the problem of polyuria and the pituitary body He points out that while some clinicians and experimental workers regard the polyuria which accompanies tumours of the pituitary region as due to an effect upon the pituitary itself, others consider that it is the result of pressure on the base of the brain, the tuber cinereum The evidence for these views is completely discussed , the author considers that insufficient account has been taken of the pars tuberalis of the pituitary, which is intimately connected with the tuber cinereum, over which it spreads for some little distance, and his personal bias appears to be in favour of an effect on the gland itself The remaining third of the volume deals with the pineal body, pancreas, and sex glands , a very full account is given of each The method of incorporating in the text full references to recent experimental work adds much to its value In the section devoted to the ovary there is no mention of the work of Allen and Doisy in the preparation of ovarian extracts

Clinicians as well as research workers will appreciate this treatise

JOURNALS

INDIAN JOURNAL OF MEDICAL RESEARCH Vol XIV No 2 —Of the 21 contributions to this number it is possible to select some papers of more than ordinary interest L E Napier is now able to present an analysis of the first 104 cases of kala-azar treated with stibosan (von Heyden 471) The mean dose of this drug required for a cure is 4 0 g , individual injections of 0 3 g appear to be well tolerated —Prof F M Marras of Port Said, describes a rapid method for the diagnosis of plague By adding a small quantity of agglutinating anti-plague serum to a solution of sugars, such as lævulose, glucose and mannite, he obtained a marked acceleration of the fermentation and could ascertain at the same time the specificity of the bacillus by microscopic agglutination —Major-General T H Symons, I M S , describes an epidemic of Tick fever due to *Piroplasma gibsoni* amongst a kennel of foxhounds belonging to the Madras hunt. The actual tick-vector has not been incriminated Whilst intravenous salvarsan is a fairly efficient remedy, the recently introduced tryparsamide seems to be superior —H E Shortt, P T Barraud, and A C Craighead contribute a detailed article on a massive infection of the buccal cavity of *Phlebotomus argentipes* with *Herpetomonas donovani* artificially fed In a separate contribution the same authors record the capture in a heavily infected kala-azar house of a naturally infected specimen of this sandfly The significance of the findings is obvious and points to the assumption that the monsoon period is one during which infection with the parasite of kala-azar may be acquired and that the sandfly is the transmitting agent —R McCarrison writes upon Lathyrism in the Gilgit Agency, in which he describes an outbreak of this curious disease due to the ingestion of millet grown on soil which had received no manurial treatment for many years —Asa C Chandler and V T Koike contribute papers of helminthological interest

A HOSPITAL ON WHEELS —Dr H Bailey, medical officer of health for Horsforth, in the West Riding, suggests the possibility of utilising a portable hospital on wheels or otherwise for the use of single patients in outlying districts where the house accommodation is unsuitable or where it is found impossible to remove the patient safely "A caravan," Dr Bailey says, "having ample accommodation for nurse and patient would prove a great boon, and could be got ready with little more trouble than that required for the preparation of a fire-brigade engine " medical opinion in regard to it ever since, "epilepsy" is at once much too manifold to be a single "disease" and too restricted for the purposes of the clinician. It is an ailment, in the sense of the German equivalent "Sucht" but in no sense of the term can it be regarded as a nosological entity complete in itself No one was more aware of the handicap imposed on research by terminological obstacles of this kind than HUGHLINGS JACKSON, who was wont to speak of "the epilepsies," *thereby to indicate the semiological rather than the* pathological meaning of the word. In truth, epilepsy is no more than a descriptive term for one symptom of a general class of symptoms brought about by a variety of pathological states, and when in the Registrar-General's Reports we find it put down as responsible *annually for a large* number of deaths on the same level precisely as cerebral tumour or pneumonia, we can realise the urgent need of revision of current opinions and the mountain of prejudice which will have to be moved if modern knowledge is ever to prevail

To envisage the problem in its appropriate setting, we have to begin with the proposition that a fit is a *transient disturbance of neural* function, possessing as a rule the features of suddenness or abruptness, disorderliness, and severity, it may or may not be accompanied with loss of consciousness, be preceded by an aura or warning, and followed by a period of exhaustion Fits may, or may not, recur In respect of each one of these components so much symptomatological latitude is possible that comprehensive definition can scarcely be reached *Examined* physiologically, a fit represents the setting into motion, or the release from control of a quantity of potential, static, neural energy, housed in neurones so linked with each other that once the process is started it may spread both laterally, on a given level, and downward to levels of a *lower* physiological grade Moreover, theoretically any group of *neurones*, at any level, may form the site of the initial excitation or release, hence clinical variants are numerous Careful observation of the phenomena during the *brief period* of their existence makes it clear *in some* instances that pontine, bulbar, and possibly spinal mechanisms are involved, in others, *units of the* rolandic motor area are the first to exhibit activity, in still others, the type of movement strongly suggests irritation or decontrol of cortical areas of considerably higher physiological grade If, *for the sake of* harmony, we can conceive of psychical energy as being but a form of physical energy, if, *adopting the* principle of emergence, we can believe that consciousness and reflective thought arise from the *complex* functioning of neurones, and do not constitute an activity of another order than the neural—then we can bring into line with the above mentioned physiological processes of the fit those cases, and they *are many*, in which symptoms belonging to the psychical series are in evidence For the aura of the fit is in all instances a conscious sensation and, therefore, a psychical thing, yet it is no less integral an accompaniment of the fit (should it as a fact be present) than the subsequent unconsciousness or the *motor* display Of it, too, we might then conceive as being a phenomenon of release or of excitation, and we should not have any *difficulty* in unifying the multiplex semiology of epilepsy, *from* aura to cyanosis, from finger-twitching to vesical evacuation, as standing only for differences in degree, range, and site, of one and the same kind of dysfunction Contrasts between hysterical and epileptic seizures would lose their force and point, and this would be an unalloyed gain to the scientific neurologist, though, naturally, prevailing clinical distinctions would not thereby be obliterated Finally, in this connexion, it would not be arduous to correlate the manifestations of petit mal with those of the major variety, *for they would* represent a minor degree of disorder of function of neurones subserving consciousness, without, or with a minimal, spread to those whose activities are motor. Thus, too fits without *actual convulsion* would be better understood

Another proposition well worth bearing in mind is to the effect that epileptic symptoms are the outcome of the *activation of normal, healthy neural* mechanism, and can in no sense be prima facie evidence of the existence of disease The arguments in favour of this view need scarcely be summarised A moment's thought will show that complete functional restitution after a fit eliminates all question of structural defect Convulsants of the absinthe and thujone class produce fits in perfectly normal laboratory animals Clinical data might be adduced in abundance to support the contention Wherein, then, does the abnormal element consist? The key to this particular aspect of the problem is to be sought in a survey of the conditions as a sequel to the presence or recurrence of which neural energy is allowed uncontrolled liberation and rapidly passes along and down neuronic lines (and up, too, if certain data which *cannot here* be examined are accepted) Ignorant as we are of the normal processes of volitional *innervation*, *we are* quite at a loss when an attempt is made to visualise or conceive otherwise of the exact mechanism of de-inhibition But some help is forthcoming from a consideration of the *organic conditions apt* to be associated with the appearance of epileptic symptoms Fits are prone to develop with locally altered vascular conditions (as in cerebral embolism, thrombosis, hæmorrhage), with more general states of intracranial pressure (in cerebral tumours), or of a toxic *character* (*uræmia*, eclampsia, artificial convulsants) For the vast group of epilepsy of unknown origin we must by analogy postulate the existence of a factor, or, more probably, of factors which are capable of exercising the same effect on nerve-cell constellations as do the mechanical, vascular, or toxic factors just *mentioned* That they may on occasion be constituted by some, as yet, ill-recognised biochemical *change* is far from improbable, but not inherently more feasible than that in other instances stimuli of a psychical order should suffice equally well to cause a similar energisation, or, rather, a setting free *of energy* existing in potentia Approach to the perplexities offered by epilepsy is, therefore, welcome from any side, chemical or mental, vascular or neural But none can ever be acceptable which ignores the complexity of the subject, fails to embrace the multiplicity of clinical variants, or does not keep *steadily* in view the problem as a whole

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MEMBERS of the profession will be glad to learn that a presentation is to be made to Sir Berkeley Moynihan on his retirement from the active staff of the University and General Infirmary at Leeds Sir Berkeley Moynihan is the first surgeon from the provinces to be elected President of the Royal College of Surgeons of England, and the work which led to his election is known all over the world and has added distinction to British surgery A committee has been formed, of which the Lord Mayor of Leeds is chairman and Mr L R Braithwaite *vice-chairman*, and its intention is to collect subscriptions *for a portrait* of Sir Berkeley Moynihan to be placed *in the* board room of the General Infirmary Whilst the smallest contribution will be welcome, it is suggested that no *individual* amount should exceed £5 stringency in certification would afford no complete protection to health insurance funds The insured population will have to learn that they are contributing to a fund of their own for certain definite and desirable purposes that this fund is not unlimited, and that the more they ask for trivial complaints the less likely becomes any extension of the scheme to include specialist and hospital treatment The last seven months have been indeed a searching time for the principle of contributory insurance as a method of financing medical service, and for the health of the coming generations it may be that schemes of additional benefit will have to be put on a less uncertain footing than the amount of surplus accruing at five-yearly valuations

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SOME PROBLEMS OF IMMUNITY IN TUBERCULOSIS.

THE scientific beliefs of one generation are frequently anathema to the next In a paper read at the recent Tuberculosis Week end Conference[1] in London and published in our present issue, Dr GEORG SCHRODER, one of the most experienced of sanatorium directors, discusses some of the problems of immunity in tuberculosis, which appear to be not much nearer solution now than they were a generation since Thirty-five years ago ROBERT KOCH introduced his "lymph," which soon came to be known as tuberculin, and opinion is still sharply divided as to its therapeutic value and its mode of action It might be difficult to determine the extent of its use at the present time as compared with, say, 20 years ago, but judging from the number of original papers written and published on the subject there is no sign of complete disbelief in its efficacy, though there is a vast deal of healthy agnosticism Dr SCHRODER would presumably include tuberculin amongst the other so called specifics which cannot be "absolutely relied upon for treatment or for prophylaxis" Probably few clinicians—and still fewer immunologists—nowadays could be found to subscribe to the original view of KOCH's day that tuberculin is a true antigen in EHRLICH's meaning of the word, generating a specific antibody to tuberculosis It is some years since A WOLFF-EISNER suggested that, in clinical tuberculosis, there is an increased sensitiveness not only to tuberculin but also to protein-split products in general, and the tuberculin reaction seems now to be generally accepted as not specific in the narrow acceptation of that word Dr SCHRODER goes further in suggesting that tuberculin, by acting as an irritant of tuberculous tissue, promotes the "natural disintegration of the focus of disease" A similar view has been advanced in various quarters as an explanation of the action of sanocrysin and other chemotherapeutic remedies If this view be correct the question naturally arises, What relation has this disintegrating action to the formation of connective tissue in a chronic tuberculous focus? Dr SCHRODER attempts an answer with the explanation that the collateral zone of inflammation is protective, and that when the stimuli are not too strong connective tissue is formed, as a result of stimulus, in the reticulo-endothelial tissues surrounding the avascular tubercle This theory is not new, but it is a sign of the times that it should be advanced now in so many quarters as a modification of the pure and unadulterated doctrine of tuberculin specificity on which scientists staked their reputation a generation ago

If it be assumed—and it is a large assumption—that a tuberculous focus needs a stimulus to disintegrate the tuberculous tissue and promote fibrous tissue formation, does it necessarily follow that tuberculin—or for that matter any other foreign protein or chemotherapeutic remedy—can supply that stimulus in a way which the tubercle bacillus itself cannot? The available evidence is all too vague for a categoric reply Indeed, the whole question is a good example of the loose way in which the word specific is often used both by sanocrysin and by tuberculin advocates In the case of tuberculin attention has, for the moment, been directed to the possibility of standardising the product on immunological lines The questionnaire recently issued by the Health Section of the League of Nations has elicited much interesting information and has stimulated research, but it has revealed no consensus of opinion There are at least four methods of standardisation in use, giving different results, and until the immunologist can get down to a basic standard the clinical records of tuberculin are really not comparable one with the other A further pertinent question dealt with by Dr SCHRODER is that of allergy He makes the point that "the stronger the allergy the greater the resistance," in other words, allergic behaviour and resistance to infection run, to a certain extent, on parallel lines C v PIRQUET also has pointed out that in measles the positive allergic reaction to tuberculosis, which he, too, regards as protective, may be abolished If this be so, it would afford support to the clinical finding that an attack of measles increases the susceptibility to tuberculosis A further instance of diminished allergy is quoted in the cases of tuberculous meningitis observed in HAMBURGER's clinic Dr SCHRODER deduces that cases showing high allergic response are likely to do well without specific therapy, whereas those with a low allergic reaction may be helped by such treatment Unfortunately, allergy is itself an ill defined conception in clinical practice, and attempts to measure allergic response by laboratory means have not been very successful Dr SCHRODER mentions numerous tests which have been used, from the older graduated Pirquet reaction to the newer sedimentation test Some of them are probably more sensitive and illuminating than the general run of temperature charts, but they are often no more specific than is pyrexia and until a sufficiently large series of quasi-continuous observations can be made on individual patients their practical utility as a means of gauging resistance or allergic response must be limited

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A DISCUSSION ON EPILEPSY

ON another page will be found a report of the discussion on epilepsy, which occupied the Section of Neurology of the Royal Society of Medicine last week A short time ago we summarised the presidential address of Dr ALDREN TURNER, on the same subject, delivered before the Section of Psychiatry of the Society It may accordingly be convenient to take this opportunity of reviewing some of the questions presented by a perplexing malady, still surrounded by obscurities that, in view of its history and of its frequency, constitute no little reproach to medical science and art By way of preface, it is only right to point out that epilepsy occupies a peculiar if not unique position among morbid states, and suffers from the paradoxical disadvantage of being an age old "disease" Known from the earliest times as "the falling sickness," a conception which has coloured recovered from the disease. The donor must have a negative Wasserman reaction and be entirely free from all acute symptoms such as fever, myoclonias, diplopia, respiratory catarrh. With strict aseptic and antiseptic precautions, 30 c.cm. of blood are withdrawn by means of a syringe every three or four days from the donor; the blood is then transferred to a centrifuge tube and the serum allowed to separate by standing or centrifugalisation. The supernatant serum, which should be perfectly clear, is next transferred into ampoules for 6 c.cm. doses. Controls are made with bouillon cultures and any ampoule showing cloudiness or serum on the surface is discarded. The serum will keep in ampoules in the ice-box for a period of six months. The treatment is performed every three or four days and repeated according to the indications presented by the patient. After withdrawing 10 to 30 c.cm. of cerebro-spinal fluid, 6 c.cm. of the serum is injected intraspinally. Immediately after the intraspinal injection the foot of the bed is raised one foot high, in order to avoid a too sudden and abrupt diminution of the intra-cranial pressure. Adrenalin chloride (1 in 1000) 0.5 c.cm. is injected hypodermically to minimise the risk of anaphylactic shock. A few hours after the injection rise of temperature occurs to 38°-39° C., with lumbar pain, headache, and hyperæsthesia along the lower extremities, the symptoms lasting for three to four days. Dr. Sison also tried inoculation with benign tertian malaria, but not in a sufficient number of cases to warrant any conclusion. No improvement from any therapeutic measure was observed in patients suffering from the Parkinsonian syndrome.

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[1] THE LANCET, 1926, ii, 1134

SUMMER DIARRHŒA—A PREVISION.

UNTIL a few years ago it was taken for granted that all diarrhœa in the summer-time was the direct result of an infection and could be prevented by cleanliness alone. Very obviously the proportion of true infective diarrhœa varies with the climate of the country and with its advance in the science of public health. We read with interest in American and Australian journals of blood and mucus being ordinarily found in the stools of infants with diarrhœa, whereas these manifestations are very rare in this country. Summer diarrhœa is not the cause of high infant mortality in Scotland—probably because of the climate—and it is well, therefore, to realise that the problem varies in different places. There appears to be very little ground for assuming that an infection plays a primary part in the vast majority of these cases in the British Isles, possibly not more than 1 in 10 is infected with the true pathogenic organism. The clinical picture in such a case is clear-cut, with its profuse blood-stained mucous stools and high temperature. All efforts at aborting such a case by the usual means fail utterly, and it runs its full course, just as typhoid does, regardless of any known treatment. Of the remaining 90 per cent., a few are symptomatic diarrhœa—that is, general infections to which the child reacts by profuse diarrhœa. These cases are seen throughout the year with middle-ear disease, pyelitis, or during influenzal epidemics, but represent a very small proportion only. Marriot[1] has recently pointed out a most interesting group of cases suffering from acute diarrhœa which fail to react to any treatment, waste rapidly, and have a continuous high temperature. Only the most careful examination reveals a subacute infection of the mastoid bone on one or both sides, and operative treatment seems to be indicated. The incidence of otitis media and mastoid disease in this country is much less than in America, and this complication is probably an extreme rarity here.

The vast majority of cases of so-called summer diarrhœa are purely dietetic in origin—that is, they are preventable. The children who suffer from this disorder, as Dr. Ronald Carter points out in a paper which we publish on p. 176, fall into two main groups: (1) perfectly healthy children, and (2) those who have been chronically ill. In the infant up to, or over the normal weight, an acute bilious attack very often occurs because of overfeeding, especially on fats. Infants fed on full-cream mixtures, or breast-fed babies not given sufficient water for their needs in warm weather, make up the majority of such cases, and their treatment in summer is just what it would be at any other time of the year—a purge, starvation, except for the addition of a little sugar, and gradual resumption of diet. Such cases are seen in the well-to-do, but are so promptly dealt with that the mortality remains negligible. Among the ignorant, however, it is often several days before advice is sought, and meanwhile attempts have been made to continue with the ordinary diet, so that a fatal issue is *common*. The other group is formed by those children who have been chronically underweight, or have failed to gain in weight; they have had slight recurring attacks of undigested or acid stools, even before the warm weather, and they may be termed the chronic indigestion group. The average infant requires less food—that is, a smaller caloric intake—during the summer months than in the winter. This is especially true if it is overclad or confined in a warm still atmosphere, such as is found in the poorer districts of great cities. The digestive tract, which has been struggling to cope with and metabolise sufficient food for the infant's requirements during the winter months, becomes hopelessly overloaded unless the supply of food be curtailed during the summer. Recent work on gastric acidity[2] in infancy has shown that the infant which, for any reason whatever, is below the normal standard of health, tends to have a decrease in its gastric function, and it is reasonable to presume that there is a similar decrease throughout the whole intestinal tract. It can be readily seen, therefore, how overfeeding in an infant with chronic indigestion during the summer months produces a sudden catastrophe. When we turn to the prevention of summer diarrhœa we must obviously concentrate on the feeding and care of the infant. To those familiar with the problem there seems little doubt that the welfare movement has contributed by far the most towards the present enormous reduction of diarrhœa, and, therefore, of infant mortality. The education of the mother in all branches of mothercraft is all-important. It should be asked, however, where the welfare movement fails in respect of summer diarrhœa, or, to put it in another way, how could the situation in summer-time be coped with at the welfare centres? Generally these centres are open for consultations only once or twice in the week, and it is in the intervals between visits that calamities occur. Some few centres even close their doors during the summer months because of reduced attendance on the part of the mothers, whereas actually they should arrange to sit daily during the months of July, August, and September. If the situation be grasped and the mother advised promptly, even in the frail subnormal infants gross intolerance to food may be prevented.

Having made certain that continuous expert advice is available for every well baby, it must be considered what advice is to be given. The mother should be told the advantages of keeping her infant lightly clad and cool throughout the day; she should be told that her child needs frequent drinks of water at regular intervals throughout the day and night, quantities equal to at least half the total of its feeds being offered throughout the warm months, and she should be warned against any attempt to urge food on the baby. In April, May, and June an effort to raise the child's tolerance for sunshine should be made, and it should be exposed to the direct rays of the sun before their strength becomes too great. It is notorious that the sunburnt babies rarely develop summer diarrhœa. In the hot, close days of the year the mother must transport her infant to the open spaces for part of the day. Heat alone is not as much to be feared as still, devitalised air. Those children on full-cream, dried, or fresh milk mixtures should be

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[1] American Jour. Dis. Child., 1925.

[2] Arch. Dis. in Childhood, 1926, vol. i., No. 4.

Annotations.

"Ne quid nimis"

VITAL STATISTICS FOR 1926

THE Registrar-General has issued a provisional statement of the figures for birth-rate, death-rate, and infantile mortality during the year 1926.

—	Birth-rate	Death-rate	Infant mortality-rate.
England and Wales	17.8	11.6	70
105 county boroughs and great towns including London	18.2	11.6	73
158 smaller towns	17.6	10.6	67
London	17.1	11.6	64

The smaller towns are those with an estimated population in 1921 of 20,000–50,000. The (crude) death-rate for England and Wales relates to the whole population, but that for London and the two groups of towns to the civil population only. Birth-rate and death-rate are per 1000 population, infant mortality-rate per 1000 births.

The Registrar-General remarks that the birth-rate is 0.5 per 1000 below that of 1925, and that, with the exception of the rate in 1918 (the last year of the war), it is the lowest recorded. The death-rate is 0.6 per 1000 below that recorded in the previous year and is equal to that of 1923, the lowest recorded rate. The infantile mortality-rate is 5 per 1000 births below that of 1925, but 1 per 1000 above that of 1923, the lowest on record. These provisional figures, which are not likely to require substantial modification, have been issued for the information of medical officers of health.

THE FIRST WEEK OF 1927

THE Registrar-General's return for the first week of the present year has just been issued, and we take the opportunity of calling the attention of the medical profession as a whole to a document whose careful study will keep the practitioner informed of the prevalence and spread of infectious disease throughout England and Wales.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 412 (previous week 342); scarlet fever, 1468; diphtheria, 1179; enteric fever, 37; pneumonia, 2033; puerperal fever, 54; puerperal pyrexia, 139; cerebro-spinal fever, 7; acute poliomyelitis, 24; acute polio-encephalitis, 3; encephalitis lethargica, 39; dysentery, 6; ophthalmia neonatorum, 112.

The cases of small-pox were reported from the following counties: Durham, 284 (11 from Gateshead, the remainder from 22 urban and rural districts, the highest figures being Chester-le Street R.D. 40, Crook 32, Brandon and Byshottles 30, Lanchester 27, Hetton 22, Willington 21, Shildon 19, Jarrow 14, Easington 12, and Tanfield 10); Lancaster, 1 (Ashton-under-Lyne); Lincoln-Lindsey, 7 (Gainsborough); Northumberland, 5 (Newcastle 1, Tynemouth 2, Ashington 1, Castle Ward R.D. 1); Nottingham, 1 (Huthwaite); Yorks West Riding, 91 (20 from Sheffield, the remainder from eight urban and rural districts, the highest figures being Keighley 33, Mexborough 15, and Doncaster 10). The West Riding of Yorkshire reported last week 61, and the previous week 45 cases. Since this return was made up ten cases of small-pox have been reported from Southport and many fresh cases from Sheffield. A fatal case has been reported from Mexborough.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 28 (0) from measles, 4 (0) from scarlet fever, 60 (16) from whooping-cough, 46 (8) from diphtheria, 51 (12) from diarrhœa and enteritis under 2 years, and 172 (72) from influenza. The figures in parentheses are those for London itself. The influenza deaths in the last five returns have been slowly rising, thus: 52, 60, 69, 86, 172—and 326 has been given verbally as the figure for the next week.

CRIPPLED CHILDREN IN CARLISLE.

A VOLUNTARY clinic for the treatment of crippled children was opened in Carlisle just over a year ago. Orthopædic work amongst the children of school age in Cumberland had been carried on for some time under the County Council, but the City Council, which is a separate authority for purposes of education and health, had not shown itself able to initiate work of this kind under existing financial conditions. As, however, the need was obvious the Council of Social Service took the matter up. The medical men of the city were invited to a conference, and promised assistance, while the Hon. Staff of the Cumberland Infirmary undertook to supervise the work. The Council then raised a sum of £500 to get the work started in premises provided by the Trustees of St. Cuthbert's Hall. A trained nurse was secured from the Oswestry Orthopædic Hospital, and the clinic was opened one day a week with an initial attendance of about 15 children, the nurse visiting the children in their homes on other days of the week. A little later the clinic was opened on two other mornings of the week for massage. By the end of the year there were 73 cripples attending the clinic; 1558 attendances had been made, and 1024 visits paid by the nurse to the homes of the children, 195 plasters had been put on, and 72 splints and instruments of various kinds supplied. These latter are supplied by the Committee, but the parents are requested to contribute towards the cost by weekly payments according to their means. Several cases found to require institutional treatment were sent to Oswestry, others requiring operations to the Cumberland Infirmary. The Health Department of the city arranged for the supply of virol at cost price in certain cases. At the outset a considerable proportion of the cases wese found to be long-standing and in need of prolonged treatment; the more recent cases, of course, yield to treatment more readily. Several cripples who previously had no earning capacity are now working in factories in the city, and providing for themselves, while others who previously were on crutches, and apparently likely to be so permanently, are now walking on their own feet. Assistance in the case of ex-servicemen's children has been granted from the United Services fund and other sources. The example of Carlisle might well be followed by other places in which the sanitary and education authorities have failed to provide for the curative treatment of their cripples.

METHODS OF TREATMENT IN EPIDEMIC ENCEPHALITIS

EPIDEMIC encephalitis made its appearance in the Philippine Islands in 1918, when three cases were recognised. In 1922 a severe epidemic of the disease occurred, cases being reported from different parts of the Islands. The first epidemic was of the lethargic type; in the second one the myoclonic type was predominant. Dr. Agerico B. M. Sison[1] made a comparative study of the different methods of treatment in the second epidemic. His first efforts were directed towards the correction of the continuous myoclonic movements which were the most distressing symptoms. Various nerve sedatives were used, such as veronal, trional, luminal, hyoscine hydrobromide, morphine sulphate and polybromide mixtures. These did not control the movements, nor had intramuscular injections of urotropine and of quinine any apparent effect. Ether anæsthesia gave temporary relief, which in one case proved permanent, the myoclonic movements not returning on the patient's recovery from anæsthesia. In the treatment of acute cases of epidemic encephalitis Dr. Sison speaks favourably of intra-spinal injection of serum obtained from patients who have just for a couple of lines in the fourth schedule there is no mention of dental treatment in the National Health Insurance Acts and the new dental organisation has at present no statutory sanction but is based on an agreement between representatives of the dental profession and the approved societies. The fact that the Ministry of Health on the invitation of the Dental Benefit Joint Committee has actually assumed responsibility for the appointment and control of the regional dental officers seems to indicate that opposition to the new scale of fees shown by certain approved societies is not taken very seriously. Figures available for December of last year show that approved societies representing 73 per cent of members eligible for dental benefit at once accepted the fees and conditions of service agreed upon by the Dental Benefit Joint Committee The societies which definitely refused to accept the scale represented only 3 per cent of eligible insured persons, and the general refusal of the dental profession to give dental treatment on any lower scale, and other considerations, have since resulted in the great majority of the doubtful societies coming into the agreement It may be taken therefore, that the initial difficulties of the scheme have been practically overcome and that a four years' experiment in dental treatment has been launched Whether a scheme involving the annual expenditure of over £2,000,000 and the professional treatment of over 10,000 000 insured persons ought to be left without some statutory control, by regulations which will have the force of law, is a matter for serious consideration

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[1] Comparative Study of the Different Methods of Treatment in Epidemic Encephalitis. Far Eastern Association of Tropical Medicine. Transactions of the Sixth Congress (1925), Tokyo, vol. ii., p. 513.

DIET AND CANCER

THE idea that diet is an important ætiological factor in cancer seems to make a strong appeal to the imagination of many writers We cannot call it an appeal to the scientific imagination because there is little scientific about it It is not based either on considerations of the pathology of the disease or on trustworthy clinical, experimental or statistical evidence. The argument begins as a rule with the assertion that cancer is rare in some particular community. The native races of Central Africa or the Esquimaux are most frequently quoted in support of the contention Since there are no vital statistics available in communities such as these, the statement at once puts out of court those inconvenient fellows, the statisticians, and makes it difficult to find anybody who from personal experience might be able to contradict the statement. So the person who makes a statement of that kind is fairly sure of getting a good innings as a "cancer expert" until the statement is investigated and found to be either untrustworthy or incorrect. Even if it were found to be true that certain races have a low incidence of cancer it would not necessarily follow that this is due to dietetic factors, since observations on animals have shown that racial differences are responsible for differences in the susceptibility to malignancy.

It would be a reasonable argument to suggest that dietetic errors may be responsible for cancer of the digestive tract It is quite feasible that such errors might produce a type of chronic irritation corresponding to that produced by tar, which leads to cancer of the skin to which it is applied There is at present no evidence in support of a view of this kind. A recent statistical inquiry by Dr M Young[1] on the incidence of cancer in men of different social classes has brought to light the interesting fact that cancer of the bowel is more prevalent in men of the best social classes, while cancer of the œsophagus and stomach is higher in men of the lowest social classes If we assume for the sake of argument that dietetic errors are responsible for cancer of the digestive tract, we would have to conclude that the dietetic errors committed by men of the highest social classes must be debited with the induction of cancer in the bowel and credited with an increased resistance to cancer of the stomach. and vice versa for the dietetic errors committed by men of the lowest social classes Dr Young's analysis, therefore, yields no evidence in support of the view that the general susceptibility to cancer of the digestive tract is affected by such dietetic differences as exist between men of the highest and the lowest social classes

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[4] Ibid

ANÆSTHETIC FATALITIES AND STATISTICS

THE two contributions relating to anæsthetics (published on the opening page of this issue and p 173 respectively) give food for serious speculation. In some respects they are so contradictory. The very fact that there should be a post-graduate lecture on anæsthetics is in opposition to Dr Goodman Levy's affirmative that "little or nothing has been effected in the way of reducing the general liability to death under anæsthetics." It is generally admitted that as regards the safety of anæsthetic administration there is no other factor which rivals in effect the knowledge and experience of the anæsthetist. This must depend to a great extent on his education in the matter, and there has been much advance in education of recent years. Every student nowadays is obliged to acquire a certain amount of training in anæsthetics before he can be correctly signed up for his final examinations, and those who proceed to hold resident appointments generally acquire a really useful amount of practical experience in the giving of anæsthetics. It is quite true that the number of anæsthetic fatalities per annum remains a formidable figure. We have, however, no considerable evidence, supplied by Dr. Levy or elsewhere, that it does not represent a falling proportion when compared with the total number of operations performed. This increases constantly and so, moreover, does the magnitude of the operations—which can be easily judged by an inspection of the daily list of operations at a few leading hospitals. Whereas in the past these lists would have been found to present a large proportion of operations for hernia, varicose veins, and similar comparatively trivial proceedings, to-day they include more generally major abdominal operations and extensive proceedings for the eradication of malignant disease. An increase in the whole number of operations performed, and a notable increase in the severity of these operations, might lead to an increased actual mortality without there being any proportional increase, and without there being any blameworthy defects in the anæsthesia. Much greater operative risks, in fact, are probably run to-day than were ever ventured on by surgeons in the past. They are often rewarded by life-saving, but they are paid for by an increased operative mortality. We are aware that this argument does not meet Dr Levy's affirmation that many of the deaths that are recorded as occurring under ether were in connexion with trivial operations. No mention, however, is made of the state of the patients at the time. Obviously, even a trivial operation may be an extremely serious affair where the subject of it is in a critical condition from some disorder, very likely unconnected with that for which he is undergoing operation. It is hard to believe—certainly our own observation gives no support to the idea—that there are frequent deaths from the administration of ether to individuals in ordinary health undergoing trivial operations. Dr Levy begs the question by suggesting that the deaths recorded as arising under ether anæsthesia really occurred owing to the use of some other anæsthetic. In this way, of course, it would be easy to explain away the entire collection of statistics on which his remarks are based. If when ether is mentioned the truth is that chloroform was used, why should it not be true that when the death certificate describes a patient's heart as "normal," it was actually the seat of myocardial degeneration? Nevertheless, we have much sympathy with Dr Levy's attempt to explain an apparently extraordinary figure. Generally speaking, the increased number of deaths under ether is, of course, due to the enormously increased use of this drug as a routine anæsthetic agent in the place of the chloroform or the "mixture" of the past. It is probably true that some deaths after prolonged ether inhalation arise from an excessive administration, owing to an unsuspecting belief in the complete innocuousness of ether. It should be realised that ether is toxic and can be lethal, even though it is not easy to bring about death on the table in the case of healthy subjects. Conditioned by considerations of this kind the trust in ether is justifiable, and will not, we hope, be shaken.

IMMUNITY IN SYPHILIS

AN annotation in THE LANCET last week (p 145) described some experiments on superinfection with syphilis, and it may be of interest to recall some recent observations on immunity to this disease. John Hunter (1810) showed experimentally that when the skin of a person with manifest generalised syphilis is scarified and inoculated with material from a secondary syphilitic lesion no lesion is produced at the site of scarification. This demonstration in vivo was the earliest experimental evidence of acquired resistance to syphilis. Dr Alan M Chesney[1] has recently reviewed the recorded observations and experiments of the workers in many countries who have, since Hunter, attempted to solve the problem of immunity in syphilis. Dr Chesney's own experimental studies of this subject are not the least noteworthy among them. His critical analysis of the protocols of experiments and the conclusions based thereon is a valuable contribution to syphilology. He finds that all the reinoculation experiments carried out upon syphilitic human beings, monkeys and rabbits, since the discovery of *Spirochæta pallida*, show that the host gradually acquires a resistance, more or less incomplete, toward a second infection with the same parasite if the disease be allowed to develop untreated. This resistant state is already present before the primary lesion has healed and it lasts for the rest of the host's life, though subject to periodical fluctuations. Not all tissues of the body, however, share equally in this resistance, and in rabbits it is more effective against homologous than heterologous strains of spirochæte. The passage of time appears to be essential for the acquisition of this resistant state. Neisser's experiments on monkeys led him to the belief that acquired immunity in syphilis depends upon foci of syphilis somewhere in the body. Analysis of his experiments in the light of experimental results in the rabbit indicates rather that in syphilis an immunity may develop which is not dependent upon the persistence of foci of infection, and this is in harmony with clinical experience of reinfections in man. This phase of the problem is still open to solution. Yet there is evidence that during the course of a syphilitic infection the host acquires some resistance against a second infection with the same species of parasite, which may persist after the first infection has been reduced by treatment to the level where it cannot be detected. Reinoculation tests in animals and reinfections in man have, therefore, no real bearing upon the question of persistence or absence of infection—i.e., of cure or failure to cure—and are useful only as indicators of specific resistance. All workers, employing no matter what antigen, have failed to produce active immunity to syphilis in man, monkeys, or rabbits. Nor has it proved possible to alter the course of an existing syphilitic infection by immunisation with any product derived from cultures of spirochæte or from syphilitic tissue. There is no convincing evidence that the offspring of syphilitic parents are immune to syphilis and at the same time free of syphilitic infection. There is no hope, therefore, that the human race may build up a heightened resistance to the disease. Neisser observed that in lands where syphilis has prevailed for generations its course is not appreciably different from that in countries where it is not so prevalent. The records of the development of antibodies in syphilitic patients are conflicting. Indeed it is far from clear that these so-called antibodies have anything to do with recovery from syphilis or with acquired or natural resistance to the disease. Certain antibodies can be produced in the rabbit; they give but little protection, however, for the very animal possessing them in its serum is found to be susceptible to infection with potent virus. F. Jahnel and J. Lange (1925) inoculated four paretics with a yaws virus which was evidently virulent for it produced yaws lesions in a normal person. In none of the paretics did a lesion develop. There is some epidemiological evidence for the view that in man yaws protects against syphilis, although the simultaneous existence of both infections in the same person has been reported. Recent work with rabbits suggests a close biological relationship between the two. If it be true that yaws can protect a man against syphilis the tropics may yet produce a new Jenner who will find a way of protecting man against syphilis by systematic inoculation with yaws virus. Venereal spirochætosis of rabbits deserves attention because of the possibility of confusing it with experimental syphilis in the rabbit. It is indigenous to rabbits, manifesting itself as a chronic dermatitis of genitalia and anus. It is transmissible from rabbit to rabbit by sexual intercourse, whereas syphilis in rabbits is not so transmissible. Its causative agent, the *Spirochæta cuniculi* is morphologically indistinguishable from *S. pallida*. There is no evidence of immunological relationship between the two. Rabbits infected with either are suceptible to infection with the other. It is certain that the tissues of the syphilitic acquire the capacity to react to new syphilitic virus introduced from without, and also to the syphilitic's own virus, in a manner different from that displayed by the normal individual. It may be manifested as apparent indifference (anergy) or by super-susceptibility (allergy). Both may be functions of the defensive process. Spontaneous sterilising immunity in syphilis must be rare; man, as a rule, is incapable of eliminating syphilis from his body unaided, though he does react against it and limit its extent. That this reaction is incomplete may be due in part to an immunisation of the invading organism against the host, a mutual adjustment between the two being arrived at whereby a state of ideal parasitism is nearly reached; or else it may be due to some similarity between the metabolic activities of the spirochætes and the host's cells.

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[1] Medicine Analytical Reviews of General Medicine Neurology and Pediatrics vol v, No 4. Obtainable in Great Britain from Messrs Baillière, Tindall and Cox 7, Henrietta-street, London.

WE are glad to announce that the slight improvement in Sir Ernest Hodder-Williams's condition is being maintained.

THE death occurred at Cheltenham on Jan. 14th of Dr. Thomas Claye Shaw, formerly medical superintendent of the London County Asylum at Banstead and a pioneer in mental welfare. He was 81 years of age.

THE Home Secretary has appointed Dr. John Crosthwaite Bridge, one of the Medical Inspectors of the Factory Department to the post of Senior Medical Inspector of Factories which was vacated by the resignation of Sir Thomas Legge.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCVII.—TUBERCULOSIS OF THE HIP-JOINT IN CHILDREN.

A SUCCESSFUL result in cases of tuberculosis of the hip depends so largely on early treatment, constitutional as well as local, that the recognition of the disease in an early stage is of great importance. In young children it is almost always the limp which gives rise to suspicion, although in older children and adults pain in the knee or hip on sudden forced movements of the joint may be an equally early symptom. A constant accompaniment is some limitation of movement, due to reflex muscular spasm; when the sound hip and knee are flexed until the lumbar lordosis is obliterated, it will be found that the child cannot lay his other leg flat on the table and further, that gentle attempts at rotation and abduction to the degree obtainable with the sound limb lead to movement of the pelvis. Limitation of movement in every direction indicates arthritis but this is not necessarily tuberculous, and other conditions have to be excluded. A transient toxic arthritis, secondary to tonsillar or intestinal infection, is not infrequent, but this clears up completely after a short rest in bed. Gonococcal arthritis and monarticular rheumatism are uncommon in the hip-joint. Acute osteomyelitis of the upper end of the femur is characterised by severe toxic symptoms and cocci are found in any pus obtained by aspiration; X ray and clinical examination distinguishes pseudocoxalgia, traumatic coxa vara, osteo-arthritis, tumours, fibrocystic disease, and disease of the fifth lumbar vertebra or sacro-iliac joint, all conditions which may give rise to symptoms suggesting tuberculosis of the hip-joint. Apart from these, almost all suspected cases prove to be tuberculous and the only way to guard against an error which may have serious consequences is to adopt the principle that children in whom pain or limitation of movement persists in spite of rest in bed for a few weeks should receive the treatment advocated for a tuberculous joint unless X ray examination reveals the presence of another disease. A negative skiagram does not prove the absence of tuberculosis in an early stage. A negative von Pirquet test, should it be obtained, is, on the other hand, useful evidence that the condition is not tuberculous.

A diagnosis of early tuberculosis of the hip having been made the transfer of the patient to suitable surroundings should be regarded as most urgent. It is generally accepted that the disease usually begins in the red marrow of the head and neck of the femur and the acetabulum, and that early reflex spasm of the hip muscles may be due to sympathetic inflammation of the joint before this has itself become actually infected with tubercle. This is the time, while the disease is still limited to the interior of the bone, to apply constitutional treatment intensively—change of air and environment, continuous life in the open air with exposure to sunshine or artificial light, good food, and cod-liver oil—combined with effective traction. London at any rate, is well supplied with institutions at which such treatment is available, and there is no need for delay, for if application is made by telephone to the London County Council any case of hip tuberculosis will be transferred by ambulance to one of the country orthopædic hospitals of the Metropolitan Asylums Board forthwith. At a few institutions such as the Shropshire Orthopædic Hospital, Oswestry, rooms are reserved for paying patients. For children of the middle and upper classes treatment combined with suitable educational facilities can now be obtained at the Morland Clinics at Alton, Hampshire, where during the summer months the amount of sunshine available for treatment is high, and the mildness of the climate makes outdoor life possible during the greater part of the year without discomfort to the patients

There has been a tendency in recent years to attribute the benefits of heliotherapy mostly to the light It is probable that this is an incorrect assumption, and that the marked influence on metabolism of exposure of limited parts of the body to movements of air and to changes of temperature is of even greater importance. In this land of limited sunshine, experience shows that, provided the cases come under adequate treatment at an early stage, results unsurpassed in any country can be obtained by an open-air life reinforced during the winter months by artificial light in graduated doses To obtain the best effect outdoor life should be continuous, the appetite and weight show immediate improvement, anæmia speedily disappears, while respiratory troubles and spread of infectious disease are almost unknown In winter the child should have a small blanket next him, with hot-water bottles or loose blanket-bags for the feet and woollen gloves or mittens for the hands With ordinary care it is only occasionally that the sunshine in this country will cause troublesome sunburn, and when it does occur it does not appear to cause ill-effect apart from the local discomfort At the slightest sign of it the patient should be covered and the reddened skin treated with calamine lotion It is unnecessary here, therefore, to follow the elaborate system of carefully graduated exposures required in Switzerland, nevertheless, it is advisable that at the commencement of the treatment exposures should be gradual both as to the extent of surface and the period, particularly with children newly received from towns In hot weather the patient should be placed in the shade during the heat of the day; the head should be protected by hat or sunshade, and the eyes should be directed away from the sun and, if necessary, tinted glasses should be worn

Methods of Immobilisation and Extension

Immobilisation in the active stage is now universal Ambulatory treatment is bad, not only because it encourages growth in the sound limb in excess of the affected one, but on account of the difficulty of fixing the joint and preventing deformity As is evident from X ray examination, decalcification of the affected bones occurs early, and for this reason imperfect fixation, leading to reflex spasm and pressure on the softened bones, is most harmful Even absolute fixation, however, does not remove a tonic contraction of these muscles, and thus traction in some form or other is needed. Weight-can extension may be used, but traction by suspension will generally be found more effective In its simplest form the ~~mattress~~, resting for its whole length on a fracture-board, is raised at one end to the level of the top rail of the bedstead head. and the cord of a strapping extension, applied to the thigh of the affected limb, is tied to the rail The weight extending the joint is thus the patient's body, and it is remarkable how in a single night an acutely tender and markedly malposed joint will painlesly fall into good position Slight flexion of the knee is secured by the insertion of a wooden bar under the mattress, and external rotation is prevented by a sandal, to the sole of which a piece of wire, bent to the shape of an inverted T, is screwed This method of treatment is suitable when the patient shows an average amount of constitutional resistance, the disease is comparatively recent, and general thickening is absent or inconsiderable, even though there may be localised abscess formation When, on the other hand, there is found on admission marked general thickening around the joint with considerable pain and tenderness, and the patient appears to have little power of resisting the disease and to be definitely ill with it, or if septic sinuses are already present, it is hopeless to expect a usefully movable joint, and a Jones's abduction frame is probably the most generally convenient splint Whichever of these two methods is indicated at first, the time will arrive when the joint may without detriment have, in the one case less effective traction in the other less complete fixation. It is then my practice to use a gas-tube frame with a weight extension, the whole being mounted on a "Carshalton" carriage,[1] which allows the patient to share in the social amenities of the hospital

When the disease is quiescent, as shown by the fact that even slight tonic contraction has been completely absent for months, the weight extension, which has been gradually reduced, may be discarded, and the movements which the patient usually tries to make at this stage may be encouraged under careful supervision, no attempt at passive movement, however, should be permitted. The longer this stage is prolonged, the greater is the mobility likely to be, but the position of the limb should be carefully observed and the progress of healing checked by X ray examination When the patient gets up he should wear a short celluloid or leather spica or similar splint and walk on patten and crutches When he is in bed the spica need not be worn and he should be allowed to move the joint if any movement is possible. Especially when the joint is fixed is it important that he should be seen at frequent intervals after the spica has been discarded, lest flexion deformity occur

Secondary Deformities

Secondary deformities of other parts of the body are not uncommon—flat-foot, genu recurvatum, genu valgum and scoliosis Flat-foot, which results from contracture of the tendo Achillis, can be prevented by putting the ankles through a full range of movement each day The genu recurvatum, which is really to a great extent a bend in the upper part of the tibia, can be avoided if the knees are kept a little flexed Genu valgum is sometimes secondary to adduction of the thigh, but not infrequently is the result of traction not having been made in the line of the femur Scoliosis is encouraged if care is not taken to keep the interspinous line at right angles to the long axis of the trunk. It is likely to occur in a severe form, especially in female adolescents, if the hip is ankylosed in a position of adduction with insufficient flexion The best position for ankylosis is moderate flexion, if, with the patient recumbent, the lumbar hollow is obliterated when the limbs are raised 35 degrees, comfortable sitting and standing are both possible If the angle is less, there is an increased tendency to scoliosis, if greater, the patient has to compensate either by excessive lordosis or by bending the knee of the affected limb, which increases the shortening

Adduction persisting to the stage of convalescence requires correction by operation If the joint is not fixed, treatment by tenotomy of the adductors, followed by fixation for several months in plaster, is often sufficient If there is fibrous ankylosis with only moderate deformity Brachett's osteotomy is useful, but when the adduction is marked the deformity is apt to recur owing to instability of the ankylosis In marked adduction, therefore, Lorenz's bifurcation osteotomy is advisable

Abscesses are treated by immobilisation and aspiration, if these fail and the abscess threatens to come to the surface, the thinned area of skin may be excised, the thick tuberculous material in the cavity expressed, and the wound sutured, the bone should never be scraped Some surgeons prefer merely to puncture the pointing abscess with a tenotomy knife Septic tracts should be slit up and allowed to granulate, sequestra if present should be removed, later, the small sinus leading to the joint should be excised, treated with bipp, and sewn up In adults operative measures in the active stage are frequently adopted with a view to obtaining bony ankylosis or pseudarthrosis

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[1] THE LANCET 1921, i, 1071.

Special Articles.

BISMUTH IN THE TREATMENT OF SYPHILIS

By THOMAS ANWYL-DAVIES, M B, B S LOND, M R C S ENG

(*From the Venereal Diseases Department, St Thomas's Hospital, London*)

(*Concluded from p 152*)

Intolerance to Bismuth

IN general the symptoms of bismuth poisoning are similar to those of mercurial poisoning, but the patient recovers sooner from the toxic effects of bismuth The following brief observations on the subject of bismuth toxicology may be of practical interest *Loss of appetite*, accompanied perhaps by vague feelings of indigestion and headache, is the earliest symptom of bismuth poisoning *Loss of weight* is another early sign, and rapid loss of weight of 2 to 4 lb in a few days suggests commencing intolerance *Sleeplessness and depression* are signs of intolerance which may easily be overlooked They are generally accompanied or followed by albuminuria, and indicate suspension of the treatment A *blue line on the gums* is a most valuable sign to the practitioner as it is a guide to the amount of bismuth that can be tolerated, and consequently to the dosage At first a grey line forms round the edge of the gums and this gradually turns to a greyish-blue colour Even when the line becomes definitely blue, provided that stomatitis is absent, the administration of bismuth need not be stopped, but the dosage should be reduced In this way bismuth may be continued for many weeks without ill-effect. On the first sign of stomatitis, however, the injections of bismuth should be stopped, as the action of the drug is cumulative Colonel Harrison [49] has observed that the blue bismuth line on the gums is of more frequent occurrence when using the soluble compounds The bismuth blue line, however, though a useful warning of intolerance, and generally present in the average patient, may be absent in severe bismuth poisoning. The following cases illustrate this important point

Peripheral Neuritis and Albuminuria —Critchley [50] quotes a case of peripheral polyneuritis in a woman of 38 who had kidney disease Five weeks after the first injection of bismuth she had severe pains and exquisite tenderness of the muscles, with loss of strength in all four limbs Diarrhœa and vomiting and the blue line on the gums were absent

The case emphasises the fact that bismuth injections should not be administered when the kidneys are damaged, and that examination of the urine for albuminuria should precede every injection

Bismuth Dermatitis —On one occasion I saw a severe case of exfoliative dermatitis at St Thomas's Hospital venereal department, which was indistinguishable clinically from the well-known arsenical dermatitis, and was due to bismuth alone The patient was a well-nourished tabetic subject who showed no sign of a blue line on the gums

Vincent's Angina —I have had four patients under my care in whom Vincent's angina has developed during the administration of a course of bismuth Stomatitis and the blue line on the gums were not present, and there were no other signs or symptoms of bismuth intolerance, but the Vincent's angina would not respond to the usual methods of treatment until the injections of bismuth were suspended Patients receiving bismuth are more prone to Vincent's angina than usual, which is possibly due to the lowered resistance of the mucous membrane caused by the bismuth excretion in the saliva

Effect on the Kidneys —Clinical experience of the effect of bismuth on the kidneys bears out the conclusions which Brown, Saleeby, and Schamberg [51] obtained experimentally on rabbits that bismuth is a drug of relatively low toxicity They found that 30 mg per kg of insoluble potassium bismuth tartrate in oil (nine times the therapeutic dose in man) could be injected without producing an alteration in the blood chemistry indicative of nephritis or any histological evidence of kidney damage It is on account of this latitude between the therapeutic and the toxic dose that patients rapidly lose any albuminuria when the administration of bismuth is stopped The toxicity for the kidneys seems to correspond with the rate at which the metal is absorbed into the system

Acetyloxyaminophenyl Arsenate of Bismuth.

At the beginning of 1926 Levaditi [52] described a new compound of arsenic and bismuth which had been on trial since 1924—namely, the basic acetyloxyaminophenyl arsenate of bismuth, which contains 40 2 per cent of bismuth and 14 5 per cent of arsenic, and is insoluble in water Suspended in saline it cured experimental syphilis with a dose of 1 5 mg of bismuth per kg of body-weight In an oily suspension the curative dose was 0 041 mg per kg Fournier and Schwartz [53] confirmed these results in the treatment of human syphilis in 20 cases They reported the absence of painful reactions, disappearance of *S pallida* in 24 to 48 hours after the first injection of 2 c cm, rapid cicatrisation of the chancres, and a negative Wassermann reaction in each case after a single series of 12 injections

This drug, bistovol, was tested in the St Thomas's Hospital venereal department, but the above claims were not confirmed It proved very painful, and active spirochætes were found as long as six and seven days after the initial dose When it was found that *S pallida* were present seven days after a single dose of 0 3 g and the negative Wassermann reaction had become strongly positive (+ +) during the same time, stronger doses were injected at shorter intervals In two cases 0 6 g was injected in three days, but the spirochætes were found alive five days after the initial dose, and the Wassermann reaction was positive (+ +) In two other cases 0 75 and 0 9 were given, but the spirochætes were active on the fourth and fifth days respectively.

The Place of Bismuth in the Treatment of Syphilis

It is impossible to judge at present the position that bismuth will ultimately occupy in the treatment of syphilis Under its action *S pallida* disappears rather slowly from the lesion when compared with the rapid effect of arsenobenzol, and experience shows that bismuth and its compounds have not such a powerful spirochæticidal action as arsenobenzol, which can hardly be replaced by bismuth or its compounds in treating cases of early syphilitic infection There seems at present to be some danger of practitioners allowing bismuth to thrust arsenobenzol into the background Such a substitution is not warranted by the evidence Bismuth does not render the patient non-infective so quickly as does arsenobenzol, and its use to the exclusion of arsenobenzol in early cases is likely to be followed by an increase in the prevalence of syphilis, since a greater proportion of cases of syphilis in an early and communicable stage will transmit their disease to others Some at least of the great reduction of cases of syphilis seen for the first time at the treatment centres in England and Wales, from 42,000 in 1920 to 22,000 in 1925, is attributable to the rapidity of action of arsenobenzol, and it would be a great pity if this advantage were to be lost in a wave of enthusiasm for a comparatively new remedy This warning is supported by the fact that in France, where bismuth is more popular and more extensively used than elsewhere, there has been a definite increase in the number of syphilitic cases since 1923, particularly in the large centres such as Paris Prof Josef Jadassohn,[54] speaking at Berlin in November, 1926, on the decline of syphilis in Europe, had collected statistics showing that in both England and France, between 1919 and 1923, there was a decrease of 50 per cent in the number of syphilitic cases, no doubt due to the use of salvarsan During the past four years, however, there had been a recrudescence of syphilis in France, where bismuth was first introduced as an antisyphilitic remedy This was also observed by Dr E Jeanselme,[55] of the Hôpital St Louis, who found that there was an increase of 20 per cent in the number of cases recently infected with syphilis in Paris, the figures having risen from 1955 in 1921 to 2445 in 1925 As the author stated, this may be due in part to the enormous immigration of foreign workmen into the large manufacturing centres in that country, but the chief reason advanced by Jeanselme is the indiscriminate substitution of bismuth compounds for salvarsan The view is held by many French doctors that bismuth is more active therapeutically than arsenobenzol

If not a substitute for arsenic, can bismuth replace mercury? This is a difficult question which it is impossible to answer conclusively, considering our present knowledge The experimental evidence obtained by the action of bismuth on syphilis in the rabbit is in favour of that drug, but the clinical results and the pathological findings in man have not been so successful Raiziss and Severac[56] consider that bismuth compounds are powerful enough to cause complete eradication of infection in experimental syphilis in the rabbit, but that salvarsan has a higher chemotherapeutic index than bismuth, although this is distinctly superior to mercury Workers disagree concerning the effect of bismuth on the Wassermann reaction It does not seem to have any marked effect in changing a positive to a negative result in the serum of cases of late syphilis or in Wassermann-fast subjects, but there is general agreement that clinically the tertiary lesions, especially those in the mouth, and the symptoms of neurosyphilis, excluding general paralysis, respond rather well to the administration of bismuth On the other hand, certain observers have reported that poor results occur in some cases, there being apparently little or no therapeutic effect The more favourable result of the Wassermann test in the series of mercury-treated cases when compared with those treated with bismuth suggests that mercury is more active therapeutically than bismuth, since as our knowledge stands at present the blood test results are the best criterion of the effect of treatment.

Indications for Preference of Bismuth to Mercury

There are certain times when bismuth is the remedy of choice It is not so toxic, and can be more easily tolerated than mercury in nephritic cases In cases of jaundice due to arsenical poisoning, bismuth can be given without causing the patient any inconvenience, while mercury, owing to its greater toxicity, is not so satisfactory In advanced organic disease bismuth is often tolerated when arsenic and mercury would be inadvisable Occasionally, in cases of late syphilis which have been inadequately treated with mercury in which the spirochætes have possibly become mercury-resistant, good results often follow a change to bismuth

There is only one practical contraindication to bismuth and that is stomatitis, which can be prevented with suitable care If disinfection of the mouth and aperients fail to remove it, injections of sodium thiosulphate, 0 45 to 0 9 g, should be given daily. This does not seem to be so effective intravenously as when given by the deep subcutaneous route Sodium thiosulphate causes no reaction, and any pyrexia after its use is not due to the drug itself

The therapeutic and toxic actions of mercury are always proportional to the amount of metallic mercury present The ratio of the curative to the toxic dose is high At the moment all efforts to increase the margin between the therapeutic and the toxic dose of mercurial preparations have failed, and more often than in the case of bismuth the syphilologist may be baulked of his result by the patient's intolerance of the remedy

There are, however, arguments in favour of alternate courses of mercury and bismuth Prof E Glynn, Dr R E Roberts, and Dr Phoebe M Bigland[57] (Medical Research Council Report, No 107, November, 1926, on the effect of treatment on the Wassermann reaction) express the conviction that a serological relapse of the patient, the Wassermann reaction becoming again positive, indicates renewed activity of *S pallida* They state that strains of *S pallida* resistant to mercury may be produced by the prolonged and insufficient administration of this drug They consider that mercury attacks the spirochætes when circulating in the blood, but is unable to reach the inaccessible residual spirochætes which, in the later stages of syphilis, become protected in fibrotic lesions, indurated lymph glands, testis, and spleen If the views of these writers are correct, they indicate the advisability of varying the remedy, giving in one course mercury, in another bismuth, and so on, a plan which seems to be favoured by a number of American syphilologists

Probably bismuth, like mercury, is capable of producing bismuth-resistant spirochætes, particularly if the dosage given is insufficient to destroy them Giemsa[58] found that spirochætes transferred from one rabbit to another developed resistance to inadequate doses of sodium tribismuthyl tartrate Glynn, Roberts, and Bigland[57] recommend the use of salvarsan for the prevention of Wassermann relapses and the destruction of residual spirochætes, as they consider that arsenobenzol does not produce spirochætes resistant to this drug. I am sceptical of this, and am inclined to think that arsenobenzol, mercury, and bismuth compounds may each produce resistant spirochætes, especially when prolonged hypotherapeutic doses are administered In support of this view Klauder[59] reported that he had produced arsenic-resistant strains of *S pallida* in rabbits by giving them small subcurative doses of arsenobenzol, and inoculating the strain through several animals

Stokes,[60] of Philadelphia, considers that half the mercury in all courses of treatment can be replaced by bismuth with advantage, and recommends alternate courses with mercury. He prefers to begin with a soluble mercurial salt, however, in cases of early neurosyphilis, because of its quicker direct action on *S. pallida* instead of the possibly only inhibitory action of bismuth Dennie[61] believes that recurrent syphilis should be treated by salvarsan with mercury administered to the limit of tolerance and alternated by courses of bismuth

All these are arguments for the administration of arsenobenzol at the same time as mercury or bismuth in preference to the separate use of these drugs Mercury and bismuth, however, should not be exhibited together as they are eliminated by the same routes, and their toxic effects are similar and additive

I would like to sound a note of warning against the indiscriminate use of the bismuth compounds if the best therapeutic results are to be obtained Sufficient time has not elapsed for us to decide whether bismuth or mercury is more effective, but the results after four years of bismuth therapy do not warrant the wholesale adoption of bismuth to the extinction of mercury In spite of the fact that bismuth has been enthusiastically adopted, thoughtful workers will question the advisability of discarding mercury at this stage of our knowledge, for the ascendancy of bismuth over mercury in the cure of syphilis has not been established, although the easy convenience of the painless administration of an insoluble bismuth compound is an important factor in dealing with frail humanity

In general the results of workers in this country have not confirmed the findings of Levaditi and his co workers in France, and although bismuth is convenient to administer, it seems doubtful if it will succeed in replacing mercury entirely in the chemotherapy of syphilis

Conclusions

1. Bismuth and its compounds have a definite use in the treatment of syphilis 2 The soluble compounds are painful and more toxic than the insoluble drugs, which are painless 3 Metallic bismuth is the least toxic of these preparations 4. The most satisfactory method of administration is by the deep subcutaneous route 5 Severe bismuth poisoning may occur in spite of the absence of the blue line on the gums

6 Bismuth is capable of eliciting the Jarisch-Herxheimer reaction. 7 Tertiary lesions of the mouth and tongue, and the symptoms of tabes, respond particularly well to bismuth therapy 8 Bismuth may not be so powerful as mercury, but it is more convenient to use 9 Bismuth and arsenobenzol have not such a strong effect on the Wassermann reaction as arsenobenzol and mercury. 10 Bismuth is valuable in cases of nephritis, jaundice, and advanced organic disease, where mercury and arsenic may not be suitable, and in late syphilitic cases which have become resistant to arsenic and mercury. 11 The evidence is in favour of bismuth, arsenic, and mercury, being all capable of producing resistant spirochætes when administered in subtherapeutic doses 12 Bismuth is not an efficient substitute for arsenobenzol 13. Recent experiments by Kolle and Evers suggest that bismuth may have an *inhibitory* action rather than a curative effect, and at present our knowledge does not warrant the wholesale adoption of bismuth instead of mercury 14 It is not established that bismuth is more effective than mercury in the permanent cure of syphilis, and it may be found that the curative value of mercury is higher than that of bismuth

The writer is indebted to Colonel Harrison, director of the St Thomas's Hospital Venereal Diseases Department, for permission to quote the results obtained in the clinic, and for valuable assistance in preparing this paper

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(*Continued at foot of next column*)

THE INCIDENCE OF CANCER IN MONASTIC COMMUNITIES

THE incidence of cancer upon members of certain religious orders has been the subject of an elaborate statistical investigation[1] undertaken by Dr S Monckton Copeman, F.R S, and Prof Major Greenwood under the auspices of the Departmental Committee on Cancer of the Ministry of Health Sir George Newman remarks in a prefatory note that though the results of the inquiry are negative, they are well worth publishing, not only for their scientific value. but as an indication of the kind of proofs that have to be sought before the various popular dietetic theories of cancer can be accepted

The authors of the monograph point out that, of the many thousands of pages devoted to speculations on the ætiology of cancer, a by no means negligible proportion are devoted to the indictment of general or particular dietetic habits Certain English medical men, whose names deservedly carry great weight in different departments of medicine and surgery. have suggested that rich, abundant food, particularly meat, contributes to the production of cancer; that intestinal stasis conditioned by the diet of civilised mankind is the most important ætiological factor of malignant disease; and that the increased use of preservatives in the food industries has a bearing upon the increase of mortality from cancer.

Correlation and Causal Relation

The objection in principle to most of the arguments on these lines used by various writers is, they contend, that a correlation in time or place between cancer mortality and some other variable is tacitly interpreted as being equivalent to a causal relation. provided such an assumption is not patently absurd Nobody, of course argues that the increase during the last quarter of a century of the Socialist Party has been an ætiological factor of increasing mortality from cancer, because no rational person can imagine any direct relation of cause and effect between the two variables But if we were to substitute for Socialist Party, consumption of meat, of margarine. or of tinned foods, many intelligent people would accept the argument as valid, because they can imagine ways in which increased consumption of animal protein, of vitamin-poor fat, or of antiseptics *might* prejudice normal cellular metabolism. The *statistical* argument in one case is precisely as good as in the other, carrying us no further than the proposition that the statistics are compatible with the truth of the assertion that the growth of the Socialist Party, of the consumption of meat, of margarine, or of American canned goods, *may* be a factor of increasing cancer mortality. An English writer who seriously

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[1] Ministry of Health Reports on Public Health and Medical Subjects No 36 Diet and Cancer London H.M. Stationery Office 1926 Pp 33 9*d*

BISMUTH IN SYPHILIS.

(*References: Continued from previous column*)

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attempted to meet these criticisms was the late Rollo Russell, who argued that if the constituents of a diet be really an ætiological factor, then we should try to study the cancer mortality of persons living under conditions which, *except* in respect of diet, are comparable with those experienced by populations wherein cancer is a large and measurable factor of mortality. In his work, published in 1912, Russell gave statistics of seven Cistercian and Benedictine Monasteries, in which the total number of the votaries extending over a period of about 26 years was 120; during this time only one death from cancer was recorded, this being attributed by him to the exceptional habitual use of a strong irritant (pepper).

These observations of Russell were the starting-point of the present inquiry. The dietetic habits of the Carthusians, Benedictines, Cistercians, Carmelites, and Dominicans were studied, the two last named not being enclosed orders, and both English and Belgian data were analysed. The next step was to attempt to obtain an accurate record of the ages and lengths of time under observation of the persons whose risk of dying of cancer it was sought to measure, together with the certified causes of death of those who died.

The Ecclesiastical authorities of five religious houses in England, and one in Belgium, and the staff of the General Register Office furnished particulars from which life tables could be compiled, the standard of expected death being taken from the tables of the British Official Life Annuity Experience (1893).

Inferences Drawn

These tables are set out in the report, the data are analysed, and a few inferences drawn. A *certain* inference is that no statements as to causes of death, even when made in absolute good faith, by persons long resident in the communities should be accepted without verification. Thus among the English Carthusians and Cistercians (males) visited by one of the authors, *one* death only was known by the authorities to have been due to cancer. Investigation of the death registers raised the number of definitely certified deaths from cancer to *seven* and disclosed four others which might have been due to cancer.

What reliance can be placed on hearsay statements respecting mortality from cancer amongst, say, aborigines, the reader may judge in the light of this investigation of well-kept records. An equally certain inference is that, upon the evidence, we cannot say that a prima-facie case has been made out in favour of the proposition that any of the Orders are less liable to cancer than their lay contemporaries in the world.

A study of the general statistics of Cistercian communities throughout the world confirmed the conclusion reached that cancer does occur as a fatal disease in Cistercian Houses everywhere, whether the real incidence is high or low cannot be learned. The necessary data do not exist.

Incidence of Fatal Cancer upon Inmates of Prisons and Mental Hospitals

The low rates of mortality from cancer recorded in prisons and mental hospitals has been the subject of comment, and the authors append some critical observations on this point. The inmates of prisons and mental hospitals have only one point of resemblance to members of religious orders—viz., that they reside in institutions and receive a diet less varied and less rich in proteins and fats of animal origin than the general population. The most valuable analysis of prison data is to be found in a monograph on the English Convict, by the late Charles Goring, who came to the conclusion that cancer was less prevalent amongst convicts than in the general male population. The authors of this investigation, after studying Goring's figures, agree with him that the fatal incidence of cancer on convicts appears to be lower than on the general population of like age, but, as it was impossible to examine the death certificates or to determine the precise exposure to risk (as they had been able to do for the religious orders), and as they found in the latter case that first impressions were not confirmed by a closer examination, they do not feel entitled to draw any stronger conclusion from the evidence available than a verdict of not proven. An analysis of the data accumulated in the 19 years which have elapsed since the end of the period covered by Goring will be carried out when occasion permits.

As to mental hospitals, attention has been directed officially more than once (e.g., in the Sixty-fifth Annual Report of Commissioners in Lunacy, p. 26, and Tenth Annual Report of the Board of Control, p. 34) to the fact that the proportional mortality from cancer in the mental hospital population is much less than in the general population.

After making various allowances, the authors conclude that there is no important difference between the rate of cancer mortality upon inmates of mental hospitals and that upon the general population. But the fact that, *relatively to other causes of death*, cancer is less frequent in mental hospitals than outside them, has led some to suggest that there may be special factors militating against the prevalence of cancer. One such factor is the huge force of mortality exerted by causes either peculiar to the insane, such as general paralysis or notoriously frequent amongst them, such as tuberculosis. But it may still be urged that since, judged by mortality-rates from diseases *not* peculiar to the insane the inmates are "bad" lives, there is at least a relative immunity to cancer which needs explanation. This argument, however, rests on the tacit assumption that the fatal incidence of cancer varies with the general resistance of the body. This is a plausible assumption but it is not easy to justify. The analyses made for the Cancer Commission of the League of Nations, dealing with the incidence of different forms of cancer upon women (Data of England and Wales 1911–20), led to the conclusion that those subdivisions of the country with high (or low) rates of mortality from cancer of the uterus or breast did not, on the average, have high (or low) rates of mortality from other diseases. This argument is, of course, not conclusive, and, while drawing no inference, the authors consider it proper to call attention to the fact that two types of institutional population, convicts and the insane, while differing widely in respect of general mortality—the former having a rate somewhat superior to and the latter enormously worse than the general rate—do have this in common, that *both* show either an absolutely or relatively low rate of mortality from malignant disease.

Conclusion

The analysis of the data supplied by monastic communities conclusively proves that fatal cancer occurs in populations abstaining from flesh food, and lends no real support to the contention that among such populations the relative incidence of cancer is low.

A tribute is paid by the authors to Cardinal Bourne, Monsignor Jackman, and to the many conventual Superiors who have made the analysis possible, often at the cost of very considerable labour in searching records and entering particulars upon cards. Although, in a sense, the results are inconclusive, the labour has not been in vain. A perusal of this report will convince most impartial persons that no scientific value whatever attaches to assertions, supported merely by the vague pseudo-statistical evidence which is customarily cited, respecting the rôles of certain articles of common consumption in the genesis of cancer. There is a too general impression that it is the duty of scientific men, particularly those in the public service, to try out any and every suggestion of this kind. As the present report abundantly proves, the trying out of any such suggestion is a most laborious business, not merely for the investigator, but for the persons called upon to supply information.

WELSH NATIONAL SCHOOL OF MEDICINE

THE QUESTION OF A CHARTER

ON Jan 14th a special meeting of the Court of the University of Wales was summoned at Shrewsbury, for the express purpose of receiving and confirming a draft Charter incorporating the Welsh National School of Medicine as an independent school of the University This Charter had been prepared by the University Council in accordance with a decision reached at a previous meeting of the Court held in October, 1925 The adoption of the draft Charter was proposed by Mr W N Bruce and seconded by Alderman William George However, an amendment by Mr A H. Trow, B Sc , Principal of the University College of South Wales and Monmouthshire, in favour of the reference of the proposals back to the University Council for further consideration and conference with the College was carried by 53 votes to 48 The amendment was supported by the opinion of Counsel, Mr Alexander Grant, K C , whose views on certain legal points appear to have had considerable influence on the voting In answer to various questions put to him by the University College of South Wales and Monmouthshire, he gave the opinion that the scheme suggested by the University Council was beyond the powers of the University as conferred by its present Charter or by the suggested altered Charter, that the proposed scheme was a grave infringement of the rights of the College to which the school had hitherto been attached, and that an Act of Parliament would be required if property now vested in the University College of South Wales and Monmouthshire were to be transferred to the new school. Dr Rocyn-Jones, seconding the amendment, suggested that the adoption of the Council's proposals would hasten the day when the Federal University of Wales would become extinct through the constituent Colleges attaining University rank Before the voting was taken a letter was read by Lord Kenyon, Pro-Chancellor of the University, from the Privy Council in which the early lodgement of the draft Charter and the petition was pressed for since the consideration of the documents would inevitably take a long time This letter contained no suggestion that the scheme for incorporating the school as an independent school of the University was not legally possible, but the Court did not appear to be convinced by this letter nor by the Pro-Chancellor's statement that the University Council had taken the advice of their own Counsel, Mr Tyldesley Jones, as to the changes in the University Charter necessary to enable the scheme to be carried out, and that these were embodied in the papers before the Court The General Medical Council have made it clear that they favour the establishment of a complete national medical school by giving notice of their intention to oppose any Charter which does not provide ,for the inclusion of anatomy and physiology

In view of the abortive result of many previous attempts to reach agreement between the Councils of the University and of the College, it is difficult to foresee a happier result from their resumption It is certainly unfortunate that a further six months' delay in taking even the first step towards establishing the status of this school seems inevitable, for its unsettled position must be prejudicial to its welfare

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BLACKBURN ROYAL INFIRMARY —Blackburn War Memorial is to take the form of a new wing to the Royal Infirmary, to be put up at an estimated cost of £80 000 Of this sum £20,000 is still required

EXTENSION OF STOCKPORT INFIRMARY —A new orthopædic department of the Stockport Infirmary was opened by Lady Sheffield on Jan 13th The building has been built and equipped at a cost of £9000 and provides massage, electrical and artificial sunlight treatment There is also a gymnasium for Swedish remedial exercises

MEDICINE AND THE LAW

Spinner's Cancer on the Face

ON Jan 13th at the Oldham County Court Judge Spencer Hogg had before him the first claim by a mule-spinner for compensation for cancer of the face The case was taken under the industrial disease section, and compensation at the rate of £1 8*s* 8*d* per week was claimed The plaintiff said that he had been a spinner for 20 years and had worked at the defendants' mills for 11 years At the beginning of 1925 he had noticed a small wart about an inch from his left eye At the time he had thought little of it but the wart had grown larger, and when he went to see his doctor he was sent to the infirmary After an operation, performed in July last, the certifying surgeon had given a certificate stating that the plaintiff was suffering from epitheliomatous ulceration caused by mineral oil Dr A C Sturrock said that the case was one of epithelioma of the face, and might have been caused by small quantities of mineral oil being rubbed into the skin over a long period He had seen only one previous case of cancer of the face in a spinner, but had seen the condition in people who were not spinners For the defence Dr Thomas Watts, certifying factory surgeon for the Ashton and Hyde District, said he had never come across such a case in a spinner, and had had none reported to him After other evidence had been heard it was contended for the defence that the disease could have arisen from some other cause and even naturally The Judge said that his duty was very limited owing to the wording of the certificate which had been accepted Any common-sense man, having regard to the daily life of the spinner and the chances of contact with oil, would realise that it was obvious that the man had got the disease through contact with mineral oil over a large number of years He gave an award for the amount claimed, the payment to date from December, 1925

Unusual Claim for Compensation

Judge Leigh sitting at Manchester County Court, on Jan 10th awarded £300 and costs to the widow of a solicitor's clerk who admittedly suffering from weakness of the heart, had hurried after one of his employers to catch a train, and had fallen dead on the slope to the platform as his employer was purchasing tickets for the journey The actual defendant of the action was an assurance company The dead man, aged 54, was a clerk engaged almost exclusively on cases under the Workmen's Compensation Act On July 29th he attended a prolonged inquest at Hawarden Bridge Iron Works, and immediately afterwards hurried after his employer to catch a train At the inquest the verdict was one of death from natural causes Two medical men had advised the deceased that although there was degeneration of the heart muscle, he might follow his ordinary occupation if he avoided excessive effort or strain The defence contended that death was due to disease and not to accident, and that it had really occurred on the completion of his duties The Judge said it was quite clear that whilst the deceased had suffered for some time from myocardial degeneration, it was also plain that his disease had not been progressive The immediate cause of death was the excessive exertion against which he had been warned, and this exertion had been brought about by following his employer in the course of his employment, the " accident " in this case being the necessity of rushing to catch the train

Imported " New Laid " Eggs

A firm carrying on business in Farringdon-road. E C , was fined £2 lately for offering for sale " new laid eggs " without including in the description the word " imported " or words disclosing the country of origin from which the eggs had been imported Two other defendants were fined 40s for the same offence The " new laid eggs " came from Australia The prosecution (by the Middlesex County Council) attempted to meet these criticisms was the late Rollo Russell, who argued that if the constituents of a diet be really an ætiological factor, then we should try to study the cancer mortality of persons living under conditions which, *except* in respect of diet, are comparable with those experienced by populations wherein cancer is a large and measurable factor of mortality In his work, published in 1912, Russell gave statistics of seven Cistercian and Benedictine Monasteries, in which the total number of the votaries extending over a period of about 26 years was 120, during this time only one death from cancer was recorded, this being attributed by him to the exceptional habitual use of a strong irritant (pepper)

These observations of Russell were the starting-point of the present inquiry. The dietetic habits of the Carthusians, Benedictines, Cistercians, Carmelites, and Dominicans were studied, the two last named not being enclosed orders, and both English and Belgian data were analysed The next step was to attempt to obtain an accurate record of the ages and lengths of time under observation of the persons whose risk of dying of cancer it was sought to measure together with the certified causes of death of those who died

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PARIS

(FROM OUR OWN CORRESPONDENTS)

Diabetes Refractory to Treatment with Insulin

It is often said that in certain cases of diabetes insulin proves useless In a communication recently made to the Académie de Médecine Prof Marcel Labbe analyses the types of case in which it has no effect, and finds that they include glycosuria due to abnormal function of the kidneys, liver, pituitary, and thyroid diabetes of very mild type which need not be treated by insulin, and true diabetes aggravated by infection general anæsthesia, or some other constitutional disturbance In most cases of apparent resistance to treatment it is questionable he says whether the dietetic régime is properly carried out by the patient in many others the dose of insulin given is insufficient, especially where the condition is made worse by infection Insulin is a powerful drug having a physiological action which is certain, although not yet been shown to be curative According to Prof Labbé insulin is always effective when properly used and there is no such thing as a form of true diabetes refractory to its action

Splenectomy for Purpura Hæmorrhagica

Two years ago a girl of 9 developed serious purpura with repeated hæmorrhages Her condition grew worse in spite of all treatment and there were only two remissions, one of them after injection of maternal whole blood and the other after radiotherapy. Neither proved more than transitory and death appeared imminent when Lafourcade, of Bayonne performed splenectomy The result exceeded all hopes and was evidently due to the operation alone, for the child has had no other treatment since it was done This case may be added to the few already published—one in France and a score abroad —in which splenectomy has cured recurrent hæmorrhagic purpura

Malaria in Two French Districts

In the Department of the Ain there is a district called Les Dombes which until the end of last century was always very marshy The construction of a railway made it necessary to drain a large part of it, and little by little the country has been rendered prosperous Prof Marchoux, of the Pasteur Institute, was sent to study malaria in this district, and states that although there are always many ponds and millions of anopheles malaria has disappeared The sporadic cases which are met with do not lead to infection around them He has made a similar study at La Camargue, which is in the Rhone delta and is an island of very fertile soil Here the proprietors have become wealthy and recruit their labour amongst foreigners—Italians, Spanish, Serbs—who work under contract, are badly lodged and poorly fed, and labour without rest Malaria persists everywhere from which it may be concluded that the malarial incidence does not vary as the number of anopheles These are mainly parasitic to animals and abound when animals are found within easy reach When, on the other hand, man is their only prey, they multiply with difficulty but infect themselves with certainty and are a sure source of infection to people living in the district

Asthma and Ultra-violet Light

Before the Société de Thérapeutique, Saidman has given particulars of the technique useful in treating asthma by irradiation The polymetallic arc, he says is satisfactory in 80 per cent of cases, with the same doses the mercury-vapour lamp gives only 46 per cent of successes. An intense source of light should be used and it should cause erythema The curative properties seem to be due to the associated effects of the ultra-violet and infra-red rays, of the gas released by the arc, and of the ionised air Cure is much more rapid in children, and sometimes when there is no enlargement of tracheobronchial lymph glands, the attacks disappear after a single sitting In adults the effects are less consistent and the treatment longer but relapse may be prevented by periodical treatment.

Influenza in Paris

Influenza was exceedingly prevalent at Paris during December, when it caused 180 deaths per day Between Dec 11th and 20th, when the epidemic reached its peak the daily average mortality was 198, but since then it has rapidly subsided Admissions to hospital have fallen from 698 on Dec 17th to 193 on Jan 8th Favourable weather has caused a similar decrease in influenza at Montpellier

Among the more important meetings of the present year will be an exhibition of medical appliances and therapeutic products, at Lyons in March; the Sixth National Tuberculosis Congress, at Lyons, from April 11th to 14th, the Annual International Neurological Assembly, from May 30th to June 1st, the French Congress of Alienists and Neurologists from August 1st to 6th, the Fifth French Pædiatric Congress, at Lausanne during September and October, the Thirty-sixth Surgical Congress, from October 3rd to 8th, the French Medical Congress from October 10th to 11th, and the Congress of Hygiene, at the Pasteur Institute, in October

The Association for the Development of Medical Relations is gaining an increasing influence abroad. It is now assisting in the organisation of a medical library at Warsaw, and receives large groups of visitors from Poland, the United States and elsewhere a special reception was recently given in honour of Prof Clemens von Pirquet, of Vienna The Association has sent physicians and surgeons to Serbia, Egypt, the Near East, and Colombia and is ready to provide information about French post-graduate courses in medicine surgery, and obstetrics

The total number of medical diplomas awarded by French universities during 1925–26 was 1242, of which 631 were given at Paris Of these diplomas 1132 conferred the right to practise medicine in France and the French colonies, whilst the rest provided only the university grade without State rights After Paris, the largest numbers of degrees were awarded by the universities of Lyons (166), Bordeaux (127), and Montpellier (113)

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Lt -Comdrs R K Shaw and G L Ritchie to be Surg Comdrs

ROYAL ARMY MEDICAL CORPS

Capts to be Majs N Cameron and W S Evans

ARMY RESERVE OF OFFICERS

Lt -Col J Matthews having attained the age limit of liability to recall, ceases to belong to the Res of Off

TERRITORIAL ARMY RESERVE OF OFFICERS

Capt E Coplans, from the Active List, to be Capt

TERRITORIAL ARMY

Capt R W Swayne to be Maj

INDIAN MEDICAL SERVICE

Maj W C Gray to be Lt -Col

Temp Lts Subbier Annaswami, Sarveshwar Nath Kaul Hari Narain Shivapuri, Amar Nath Duggal, Homi Meherjibhoy Setna Bankim Kumar Pal, Chandranan Joshi, and Kongattil Madhava Menon to be Temp Capts

Benegal Mukunda Rao to be Temp Lt

The King has approved the retirement of Maj Sir Thomas J Carey-Evans

FORMER PATIENTS ENDOW A BED.—Some months ago an Old Patients' Association was formed for the upkeep of one or more beds in the Salford Royal Hospital Members promise to give a minimum subscription of half a crown a year and the first bed has now been endowed was presumably undertaken under Article 8 of the Sale of Food Order, 1921, which runs as follows

"A person shall not sell or offer or expose for sale, whether by wholesale or retail, as fresh eggs or new laid eggs or under any description of which the words 'fresh' or 'new laid' form part, any eggs which have been imported into the United Kingdom unless the description also includes the word 'imported' or a word or words disclosing the country of origin"

It is entirely proper that Parliament should provide that eggs which have travelled from Australia should not be sold in London as "new laid" without qualification, and municipal officers are rightly vigilant in enforcing the law But the law itself might now be recast with advantage The Sale of Food Order of 1921 is a relic of food control days Only two of its six parts survive, and these are kept alive somewhat precariously by an extension of the Ministry of Food (Continuance) Act under the Expiring Laws Continuance Acts of the past few years Part I. of the Sale of Food Order relates to the sale of bread by weight, it seems to be superseded prospectively by the somewhat similar provisions of Section 6 of the recently passed Sale of Food (Weights and Measures) Act which comes into force next July. Presumably Part I will then be revoked Part III deals with the labelling of imported produce (meat, bacon, ham, lard and eggs) Its contents do not appear to be replaced by the recent Merchandise Marks Act which requires imported goods to bear an "indication of origin" Part III, therefore, can hardly be revoked until Parliament passes fresh legislation to take its place It is advisable that this fresh legislation should not be too long delayed Restrictions which recall D O R A and the war period are unpopular There is consequently a more marked tendency to evade them, and a greater disinclination on the part of magistrates to inflict serious penalties It is unsatisfactory that considerations of this nature should be allowed any foothold in matters relating to public health

Milk Bottles Filled in Street

Under this heading we reported on Dec 18th, 1926 (p 1287), that the Brighton justices had fined a milk roundsman and his employer because the roundsman was seen in the street filling bottles from a can and closing them with caps taken from his pocket The offence was observed by Dr Duncan Forbes, medical officer of health for Brighton and the fine was inflicted under the Milk and Dairies Order, 1926 An appeal, however, was entered and was heard at the Brighton Quarter Sessions on Jan 3rd, when the employer stated that he had not been represented at the first hearing because he thought that the roundsman's evidence would have refuted the charge He had read the regulations to those working at his registered premises and had no idea that any bottling was done outside these premises The Recorder decided that it had not been within the employer's knowledge that the roundsman had done what he did, and quashed the previous conviction, without, however, allowing the appellant's costs

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BRITISH PATHOLOGISTS' ASSOCIATION.

A MEETING attended by some 40 medical men and women, attached as pathologists to various London and provincial hospitals was held at the London School of Medicine for Women on Jan 7th, for the purpose of considering the formation of a society to represent the interests of those engaged in the practice of pathology in this country Dr S C Dyke, pathologist to the Wolverhampton and Staffordshire Hospital, took the chair

On the motion of Dr A. G Shera, of Eastbourne, seconded by Dr W Grace, of Chester, it was decided to form such a society, and on the motion of Dr A F Sladden, of Swansea, seconded by Dr A Renshaw, of Manchester it was decided that the name of the society should be the British Pathologists' Association The aims of the society were laid down as being 'to develop the application of pathology in relation to medicine and to protect the interests of those engaged in its study and practice" It was decided that membership should be open to all registered medical practitioners engaged in the study and practice of pathology The annual fee for membership was set at one guinea, and it was decided that there should be no entrance fee All those present at the meeting were made eligible for membership; future candidates will require nomination by two members The following officers of the association were appointed President, Dr C Powell White (Victoria University, Manchester), chairman, Dr. J G Greenfield (London), secretary, Dr S C Dyke (Wolverhampton), treasurer, Dr A Renshaw (Manchester), members of council Dr E Wordley (Plymouth); Dr G Hadfield (Bristol), Dr A G Shera (Eastbourne), Dr. A F Sladden (Swansea), Dr W Grace (Chester), and Dr R V Solly (Exeter)

IRELAND

(FROM OUR OWN CORRESPONDENT)

Precautions against Small-pox in the Irish Free State

THE Department of Local Government and Public Health has issued a circular letter to all health authorities throughout the Irish Free State drawing their attention to the outbreak of small pox in England and to the necessity for precautions against its spread to Ireland The Secretary of the Department reminds the health authorities of the terrible visitations of small-pox in 1871 and *1878*, and the varied and serious complications which accompanied the disease He points out that in addition to the danger to health and loss of life, an outbreak would prove a serious menace to the prosperity of the food and export trade, and would affect the tourist traffic adversely It is of vital importance that steps should be taken by vaccination and re-vaccination, to render the population immune The Minister, therefore, requests the local authorities without delay to take all necessary steps to compel defaulters to comply with the law and to bring to the notice of all those desiring re-vaccination that full facilities for this purpose are at their disposal

A Surgeon's Action for Fees

An action was heard last week in Dublin before Mr Justice Hanna sitting without a jury, in which Mr Denis Kennedy surgeon to St Vincent's Hospital claimed £1468 from the executors of a patient The claim was made for services rendered, but the defendants said that the services alleged had not been given, that the fees charged were not agreed fees, and that they were exorbitant and unfair While denying any liability, the defendants brought into court the sum of £526, which they said was sufficient to satisfy plaintiff's claim

Giving evidence of the operations performed, Mr Kennedy said that he had been in attendance on the patient for nearly two years He never sent in his account as she never asked for it, but she had said that his fees would be all right Mr J S McArdle, senior surgeon to St Vincent's Hospital, was examined and said that the usual fee for operations of the kind mentioned was 100 guineas, but it was not the maximum fee His minimum fee for such an operation was 50 guineas Mr R C B Maunsell Past President of the Royal College of Surgeons in Ireland, said that the fees charged were good full fees, but certainly not excessive Asked if it was not usual to send a bill before the patient died, he said that in some cases it was kind not to do so In giving judgment for plaintiff for the sum of £680 and costs, Mr Justice Hanna said that the executors had been right to bring the case into court when faced with a charge which they thought excessive. The amount might have been left to some eminent surgeon, but it might be difficult to get a medical man to decide as between a colleague and an outsider

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THE death of Dr Pasmore at the age of 62 years is a heavy loss to the county borough of Croydon where he had been in charge of the mental hospital since its foundation a quarter of a century ago

Edwin Stephen Pasmore was the son of Capt John Pasmore, and was born at Falmouth in 1864 He studied at the Universities of London, Paris and Brussels, taking his medical degree from University College, London, in 1890 and his doctorate in the following year After holding house appointments at University College Hospital and Ramsgate he became clinical assistant to Sir William Gowers at Queen Square and from that time onwards was deeply interested in mental welfare and took a leading part in furthering the public mental hospital movement in this country In 1893 he was appointed pathologist first to Banstead—where he came under the stimulating influence of Dr Claye Shaw, whose death almost synchronised with his own—and then to others of the L C C asylums and in 1902 he was chosen physician-superintendent to the mental hospital at Warlingham, then in course of construction by the borough of Croydon This hospital which from its inception was furnished with X ray rooms, pathological laboratory, operating theatre and every modern appliance, was the scene of his subsequent work and a constant source of pride to him personally It was there that the word "asylum" was abolished for the first time in the title of a hospital for the care of mental invalids, and Dr Pasmore was always careful to point out that the Cardiff and the City of London Asylum at Stone in styling themselves "mental hospitals" were following the lead given at Croydon The institution justified its description, for its average recovery rate over a period of ten years was somewhere about 42 per cent. Dr Pasmore himself was specially interested in the clinical classification of mental disorder which he based upon ætiological and pathological grounds in the belief that accompanying certain physical states of the body were certain trains of mental symptoms and that from this correlation of mental and physical states it was possible to build up a useful classification of insanity He was insistent that a fully equipped laboratory should be attached to all mental institutions in order that the range of disease might be scientifically investigated During the last few years he lectured on abnormal psychology in an honorary capacity at University College

Those who knew Dr Pasmore personally at Warlingham enjoyed his breezy genial personality, and his presence at the monthly meetings of the Croydon council infused a kindly cheerfulness which was always more than welcome to his colleagues "Of the remarkable efficiency of his management of a large mental hospital," writes one of his colleagues, "there could be no two opinions The sense of system and order infused with personal interest and care, apparent to the official and unofficial visitor to the institution, was as constant as it was striking There could be no doubt that efficiency of control had its counterpart in efficiency of treatment resulting in the large measure of cure or amelioration indicated in Dr Pasmore's periodic reports His death will make his colleagues the poorer by the loss of a personality, often enthusiastic, always considerate and kindly"

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To the Editor of THE LANCET

SIR,—The interesting article in your last issue by Dr W. A Lister brings out forcibly the relationship between pulmonary embolism after operation and (1) the age of the patient, and (2) the site of the incision The results are fully in accord with what has been observed in practice Important as these points are, however, they are only "accessary after the act" and do not give much clue to the cause of this disastrous complication after what are frequently very slight operations I have known it occur after an aseptic removal of a small toe

I think that great light might be brought to bear on the condition if a series of tests were made before and after operation on the clotting time of the blood I began to make such tests when I was in a position to do so, and found that in about 20 cases the clotting time was diminished about one minute as the result of the operation or anæsthetic This in the normal person is probably beneficial whereas in the person whose clotting time is short a further diminution may lead to the complication referred to In such a patient, if the condition were known beforehand, any cyanosis or impediment to respiration during operation would suggest some modification of the anæsthesia, especially by dilution with oxygen for such time as might be necessary Whether the clotting is due to diminution of oxygen intake or of carbonic acid output does not matter, the treatment would be the same A history of previous attacks ought always to lead to a blood examination, and due attention should be paid not only to typical fatal and non-fatal attacks, but to "pleurisy," "pain in the chest," or 'pneumonia" following within a fortnight of an operation In one family whom I attended, a sister had attacks in three out of four confinements, and two brothers had attacks after operation for simple appendix—one brother two slight ones and the other one fatal in less than five minutes The blood of a daughter of the sister was a rapidly clotting one, and before an operation for appendicitis she was given citric acid as a precaution

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Ashley-gardens, S W, Jan 14th, 1927

To the Editor of THE LANCET

SIR,—Perusal of Dr Lister's valuable paper prompts me to ask whether there are any other prophylactic measures possible, apart from massage of the lower limbs and breathing exercises The method generally adopted of applying an abdominal binder does very little, in my opinion, to prevent the stretching of the incision, which occurs with each downward movement of the diaphragm Personally, I have no doubt that much firmer pressure can be applied to the incision by means of the "anchor dressing" In this, silkworm gut sutures are passed, either through the whole thickness of the abdominal wall, or through all except the peritoneum, and then tied over the dressing I believe that patients treated in this manner suffer less pain than those treated with a binder, as the "anchor dressing" limits the stretching of the incision

Dr Lister's observations upon the incisions for the radical cure of herniæ, emphasise the importance of firm pressure applied to the operation incision Anchor dressings may be difficult, or impossible, to apply in cases where drainage is required, but here I would like to urge the claims of vaginal drainage, rather than abdominal, in cases of pelvic suppuration I invariably adopt this method of drainage, and have

Obituary.

SIR ISAMBARD OWEN, M D., CAMB & DURH, F R C P LOND HON D C L, LL D

WE regret to announce the death of Sir Isambard Owen, consulting physician to St. George's Hospital, but more widely known as a strenuous and successful pioneer in the cause of higher education The event occurred in Paris on Jan 14th

Isambard Owen was born near Chepstow in 1850, the son of William George Owen, chief engineer to the Great Western Railway, who worked under the famous engineer, Isambard Brunel, after whom he named his son Isambard Owen was educated at the King's School, Gloucester, Rossall, and Downing College, Cambridge, where he graduated in natural science He proceeded to St George's Hospital, where he held the usual junior posts, took the M B at Cambridge in 1876, became curator of the museum, and in 1882 was elected assistant physician At the hospital he lectured on materia medica and clinical medicine, and his out-patient classes were largely attended, for a highly sympathetic manner enabled him to deal with his patients with great shrewdness They enjoyed the particular stress which he would lay upon their family histories, and many valuable lessons in private practice were acquired by those who followed Owen's demonstrations He wrote at this time a small book on materia medica, and both in the out-patient department as later in the wards he paid particular attention to the art of prescribing

In 1883 he was appointed physician to the Brompton Hospital, but resigned the following year, when he became Dean of the medical school at St George's Pre-eminently a man of affairs and an organiser of reforms, St George's Hospital Medical School owes much to his initiative and foresight in this capacity of Dean For example, in 1895 the first lectureship in tropical medicine in London was established there in the person of Sir (then Dr) Patrick Manson who held it until 1908 Before this, as Medical Registrar and Curator of the Museum, his orderly and systematic mind had been much in evidence, and he recatalogued and described the specimens in the Museum on a uniform plan One of his colleagues writes of Owen as a hospital physician, thus "He was a clear teacher and was particularly good on physical signs, which he imitated in a way that his clinical clerks remembered Genial, dignified, and with something of the grand manner, he was a master of the suaviter in modo. His methodical character and complete freedom from any sign of hurry or personal annoyance enabled him to carry through work on many different lines successfully and smoothly, for while Dean and physician to the hospital, in consulting practice, and examining at various universities and licensing bodies, he cheerfully spent much time and energy on schemes for the establishment of a Gresham University in London and a National University in Wales, he really seemed to enjoy drafting official documents and regulations a pursuit in which he was an acknowledged expert" His duties it should be said, were discharged very often under stress of ill-health, for in early days, when travelling with a Napoleonic Prince, he had picked up some form of fever which frequently recurred He was recognised, however, as a sound clinical physician, and was early in the field as an inquirer into the association of disease with habitual intemperance, his work in this direction being done for a collective investigation of a Committee of the British Medical Association, to which he acted as honorary secretary He was appointed an examiner in medicine at different times to the Universities of Cambridge, London, and Durham, at the Royal College of Physicians of London (of which he became a Fellow in 1885), and at the qualifying examination for commissions in the R A M C He was also a highly successful secretary of the Medical Society of London, being largely responsible for the reconstruction of the Society's premises.

But it is in the world of education, as is suggested above by his colleague, that Owen made his mark. His well-known work in connexion with the Universities of Wales of Durham, and of Bristol had its opening phases while he was still on the active staff of St. George's Hospital and practising as a consultant physician In fact it began in his undergraduate days Between the years of 1870 and 1890 three university colleges had been founded in Wales, namely at Aberystwyth, Cardiff and Bangor, and a movement was started for the establishment of a National University of Wales with these colleges, which were receiving Government support, as the constituent bodies A conference was held at Shrewsbury at which the county educational authorities and the Colleges were represented, and Owen's duty in drafting, as secretary, the report of the findings received a remarkable recognition, for the conclusions of the conference as formulated by Owen proved to be substantially the basis of a University charter which was granted in 1893 In 1894 he was appointed senior deputy chancellor of the University of Wales, in which capacity he installed King Edward VII, then Prince of Wales, as Chancellor For the next ten years, while maintaining his deep interest in education and especially in the new University of Wales, he remained in consulting practice in London, lectured in medicine at St George's and was vice-dean of the medical faculty of the University of London But in 1904 he gave up medical practice to accept the position of Principal of the Armstrong College, Newcastle, where his constructive capacities in relation to the higher education again received striking endorsement, for four years after Owen's arrival in Newcastle an Act of Parliament was secured reconstituting the University of Durham in a way which placed the Armstrong College on a proper footing as well as the Durham Colleges, and greatly strengthened the University of Durham and its medical school The close cooperation of the great city of Newcastle with the development of University life in its midst was thus secured This valuable work was done in five years, and in 1909 he became Vice-Chancellor of the new University of Bristol, and threw himself into the task of building up in that great city an institution that was composed of a fusion of three existing bodies whose interests were not necessarily identical The long war intervened at a critical period in the life of the young university, nor did the circumstances of peace bring relief to the Vice-Chancellor's work, which however, he carried on unremittingly, only retiring in 1921 He remained on the governing bodies of the three constituent Welsh Colleges, was knighted in 1902, and again had the honour of installing a Prince of Wales as Chancellor of the University of Wales The Universities of Wales, Durham, and Bristol gave him honorary doctorates He was for many years a member of the General Medical Council representing the University of Bristol

Owen in private life was a particularly charming man, and his great success in affairs owed as much to his powers of sympathy and his conciliatory reasonableness as to his logical grasp of general designs, and his untiring industry He was a good public speaker, and at the various cities where his official duties took him, his social gifts much increased his influence in shaping the plans that he conceived During his career in London he was a bachelor, but, on removing to Newcastle, he married in 1905 Ethel, daughter of the late Lewis Holland-Thomas, of Caerffynnon, Merioneth, by whom he had two daughters

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If we can avoid an abdominal incision so much the better Dr Lister has shown us what an important factor it is in the production of pulmonary embolism

I am Sir, yours faithfully

TREVOR B DAVIES

Harley-street, London, Jan 18th, 1927

IMMUNITY TO IMPLANTED TUMOURS

To the Editor of THE LANCET

SIR,—Dr Lumsden's paper in your last issue, on the immunity to implanted tumours, raises many issues for controversy There is, however, one which appears to be of outstanding importance Fig III A and Fig V A of his paper are described as microphotographs of normal in vitro cultures of a mouse carcinoma and of a human carcinoma showing cancer cells They serve as controls to other illustrations In each figure are to be seen scattered cells, entirely separate from one another Now in my experience carcinoma cells do not grow in vitro in this way, they extend out from the implant in the form of continuous sheets or less often columns of cells In Fig III A the cells have the appearance of small wandering connective tissue cells, and in Fig V A of fibroblasts The question raised therefore is, are these cells cancer cells, or are they normal cells derived from the stroma?

The figures open another consideration Referring again to Fig V A, it is certain that, at any rate, some of the cells are fibroblasts, and yet in the illustrations for which this figure serves as a control, all the cells exhibit cytolysis It is remarkable that if anticancer sera are being used, normal cells should also suffer destruction If in a culture of carcinoma normal cells degenerate as well as the cancer cells, it is evident that antibodies against cancer are not being dealt with Inoculated cancers do not, of course, form pure antigens, seeing that they consist of cancer cells derived from some unknown animal mixed with normal cells from the animal from which the tumour was removed

Nevertheless, the question arises, why are normal cells, present in cultures of carcinoma, cytolysed by anticancer serum

I am, Sir, yours faithfully,

J C. MOTTRAM

The Radium Institute, London, W, Jan 17th, 1927

A METHOD OF ELECTRICAL TREATMENT FOR ENLARGED PROSTATE

To the Editor of THE LANCET

SIR,—Respecting the causation of prostatic hypertrophy it is agreed that little is known, but probably a sedentary life with enfeebled circulation in the extremities causing chronic congestion is conducive to the condition It has been estimated that 1 in every 3 men over the age of 60 complains of symptoms caused by an enlarged prostate A catheter life is not a pleasant prospect with the possibility of a major operation, for it seems that prostatic diseases are always to be the province of the surgeon and only inoperable cases are sent to the medical electrician

In the many text-books and articles consulted I have not found any collocation of ideas respecting the electrical treatment of the prostate, information has therefore to be sought in various works. The method I am using will perhaps be better understood if I give here a brief summary of different electrical methods applied in the treatment of prostatic disease

(*a*) *X rays* have been successfully used in this disorder

(*b*) *Diathermy* benefits prostatitis and prostatic hypertrophy and atony of the bladder It reduces pain and is killing to some germs Cumberbatch's excellent work at St Bartholomew's Hospital is well known

(*c*) *High Frequency*—Eberhart states that results from high-frequency treatment of all forms of prostatic disease are extraordinary, 90 per cent of his cases have been apparently cured without a case in which perceptible improvement was not observed He has had positive reduction in cases of senile hypertrophy, and considers high frequency to be vibration causing cellular massage, and as the current increases in frequency and voltage it is capable without an electrode of traversing long distances as do ether waves in wireless

(*d*) *Static Electricity*—Franklinisation—"Morton's wave"—Wm. James Morton, of New York City[1] stated "Static electricity is considered superficial and incapable of penetrating deeper tissues, but electro-statics will give a current that will demonstrably penetrate the human tissues as it can be demonstrated that any other current will penetrate them" But Cumberbatch states "The mode of action of the static wave current is most probably mechanical, the sudden forcible rhythmic muscular contractions aiding the local circulation and the removal of inflammatory products" I would refer to "Electro-therapeutics," by Humphris, under Chronic Enlargement of the Prostate, pp 187–193 Considering the action and excellent results, one must think of Morton's wave as a 'prostatic squeeze," inter alia emptying the vesiculæ and prostatic follicles I am unable to find any reference to prostatic treatment by faradism, possibly for the reason that it has not been used as strong currents cause pain and disgreeable sensations

In view of the results obtained by Morton's wave by tuning and regulating the current, I cause faradism to give an effect similar to Franklinism—Morton's wave Be it remembered that in Morton's wave a spark which occurs at some distant part of the necessarily closed circuit causes a steady current of successive electrical impulses, blows, or tugs

I use a Smart-Bristow coil in which the current is derived from the secondary coil, and its strength is varied by sliding the iron core in or out of the primary coil The secondary coil is so constructed (bound with somewhat coarse wire) as to produce painless muscular contractions, these contractions are governed by the switch—either one, two, three or four divisions of the secondary winding—and the iron core or plunger, and I tune them (the contractions) rhythmically by placing a metronome interrupter in circuit The metronome I time to synchronise with the heart-beats An ordinary zinc electrode is inserted in the rectum, but preferably I would use the rectal electrode designed by Dr St Aubyn Farrer, a broad, flat electrode is placed over the hypogastric region, but it can be applied anywhere on the abdomen If there is any objection from the patient to inserting the electrode in the rectum, confidence can be given by the use of a small, flat electrode on the perineum

The treatment is continued for 10 to 15 or 20 minutes Great benefit has been obtained, micturition has become less painful, not so frequent by day and night, and in a stronger stream, there is a feeling of lightness in the perineum and prostatism begins to disappear I have applied this treatment to a hard prostate, but should expect an even better result with an enlarged soft vascular prostate

A static machine with its working complements is costly to instal and for its current depends largely upon the weather. All the apparatus I use can be obtained for quite a modest sum. A word of warning is here necessary—galvanism must never be used; the metronome will only interrupt or reverse the direct current but will not do away with its chemical or electrolytic action. This can be proved by means of pole-testing paper. It is also unwise to use a faradic current attached to a galvano-faradic battery, as sometimes there is a leakage of direct current. The Smart-Bristow battery should be used instead. Faradism cannot produce electrolysis, but the ordinary faradic apparatus has usually fine windings which cause painful tetanic muscular contractions. It should always be ascertained that terminals and switches are properly adjusted so as to ensure a smooth and even current.

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[1] Medical Record, Jan 24th, 1891

I am, Sir, yours faithfully,
FREDK. WM. ALEXANDER.
Teddington, Jan. 18th, 1927.

TREATMENT OF TUBERCULOSIS BY MR. SPAHLINGER'S METHODS

To the Editor of THE LANCET.

SIR,—I am obliged to Dr. Nelson for his courteous reply to my letter. Although it now appears that Thomas Henry Allen's case was indeed among the Spahlinger Latham records at St. George's and that Dr. Nelson excluded it from his survey, it gives me much pleasure freely to acknowledge that the circumstances surrounding the exclusion completely exonerate Dr. Nelson from any suspicion of bad faith. Arguing from the record alone Dr. Nelson was quite justified in concluding that Allen had never had tuberculosis. There are nevertheless certain facts which point with emphasis in the opposite direction. Allen himself insists upon the emaciation and his wife bears eloquent testimony to a hæmoptysis. At the French Hospital we regarded him as an early but rapidly progressing case, and our view was supported by several competent physicians, including Latham himself. When under the circumstances mentioned in my last letter I was requested to remove Allen and Grace Edney from the French Hospital, I asked Latham if he would take them and put them among the Spahlinger cases at St. George's. He came to the French Hospital where he examined these two cases and agreed to do as I suggested. No one with a recollection of Latham, however slight, could suppose that he would have accepted Allen had he not been satisfied that the case was clinically one of tuberculosis; and an affirmative from such a source is worth many negatives. Moreover, if Latham had afterwards come to the conclusion that Allen was not a case of tubercle, it is not only curious, it is astounding that in the many conversations which we had together on the subject of the Spahlinger treatment he should not have mentioned the fact. He certainly never did.

It is very kind of Dr. Nelson to invite me to study with him the records at St. George's. But if only for the reason that my acceptance might be misconstrued into a doubt of his veracity, I must beg him to have me excused.

En revanche, let me suggest to Dr. Nelson that if he is really desirous of estimating the value of the Spahlinger treatment he should arrange to accompany me to Geneva, where I will undertake to show him enough in records and living testimony to convince him that at its lowest it is the part of a wise physician to preserve an open mind on a subject which has been so sadly overlaid with prejudice and *parti pris*. Your obedient servant,

Harley House, Jan. 18th, 1927. LEONARD WILLIAMS.

ULTRA-VIOLET RADIATION

To the Editor of THE LANCET.

SIR,—No definite technique has as yet been established in ultra-violet therapy, and as the alternate exposures with carbon and mercury arcs adopted by Drs. Punch and Wilkinson were somewhat unusual, I had hoped to elicit the theory on which their technique was based. Beyond stating that the carbon arc is richer in the near and more penetrating ultra-violet rays and the mercury vapour in the far ultra-violet rays no explanation is offered. It is difficult to see why near and penetrating ultra-violet rays should be indicated at one exposure and a greater concentration of far ultra-violet which have very little penetrating power (in fact, those below 2400 A° units do not penetrate at all) should be indicated at the next exposure. It might surely be assumed that as the treatment proceeded more and not less penetrating rays were necessary.

On the question of local treatment I asked why the tungsten arc was used in preference to either of the mercury-vapour lamps and not to the Kromayer alone, which admittedly might be inconvenient for a large area. The authors make no comparison between the air-cooled mercury vapour and the tungsten arc. Personally I have not noticed any superiority in the tungsten arc over the mercury vapour for softening any tissue, nor am I aware that anybody has yet demonstrated that the different concentration of energy along the tungsten arc spectrum is likely to give local effects superior to those obtained with the mercury vapour. In recent articles I have noted a tendency towards the use of a number of lamps on the same patient, no explanation (except where the area to be treated makes it obvious that one lamp was more suitable than another) being offered. I had hoped to find some reason for this tendency.

I am, Sir, yours faithfully,
London, W., Jan. 11th, 1927. M. WEINBREN.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council held on Jan. 13th, Sir Berkeley Moynihan, the President, in the chair, Princess Mary, Viscountess Lascelles, was elected an Honorary Fellow of the College in recognition of her work in connexion with the nursing profession and hospitals.

Sir Berkeley Moynihan was elected to represent the College at the celebration in London of the centenary of the birth of Lord Lister, which falls on April 5th.

The Diploma of Fellow was conferred upon Clifford I. N. Morgan, M.B. Lond. (Cardiff and St. Bart.'s).

Diplomas of Member were conferred upon J. H. Couch, M.B. Toronto (Toronto), T. M. Jones, M.B. Liverp. (Liverpool), and Joyce McConnell (Royal Free Hosp.).

The Licence in Dental Surgery was conferred upon F. H. Channon (Guy's).

The undermentioned diplomas were conferred (jointly with the Royal College of Physicians) upon the following candidates:—

DIPLOMA IN PUBLIC HEALTH.

M. L. Bahl, Marjorie Broadbent, Madeleine H. Clarke, Kathleen Davies, Muriel Davies, J. Fanning, Dorothea C. Forbes, W. L. Forsyth, L. I. Henzell, K. H. Kamakaka, Dorothy L. M. Keats, A. H. Kynaston, A. S. MacNalty, S. M. Mallick, B. S. Manghirmalani, G. O. Mitchell, A. G. Morison, B. R. Nisbet, Helen O'Brien, Evelyn D. Owen, A. C. T. Perkins, Q. M. Said, J. B. Samson, T. G. N. Stokes, C. I. Streich, and Elsie Warren.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

M. Abd-el-Hakeem, P. Banbury, E. A. Bennet, J. Bennet, A. G. Duncan, Isabella A. Gillespie, J. Heron, F. L. McDaniel, H. B. Porteous, and H. T. Retallack-Moloney.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

R. T. Desai, L. W. Johnston, O. F. A. Krause, G. S. Macdougall, J. E. G. McGibbon, N. M. Rao, and T. Williams.

ROYAL NAVAL DENTAL SERVICE.—At the recent competitive examination for entry into the Service, the following candidates were successful:—

William Edward Loftus Brigham, Leslie Foster Fairey, Sidney Mawer, Frank Drummond Manners, Leonard Austrim Moules, George Baker, William Charles George Ford, Leslie Robert Armstrong, and Harold Macklow Hill.

ROYAL SOCIETY OF MEDICINE.—The Section of Surgery is arranging to hold a debate on the Treatment of Cleft Palate on Wednesday, June 1st, at 5 P.M. Sir James Berry will open the debate, Mr. Grey Turner will speak second, and a large number of other surgeons will take part. It is proposed that all speakers shall present statistics and show cases to demonstrate the speech result.

At the quarterly meeting of the Directors of the Naval Medical Compassionate Fund, held on Jan 18th, Surgeon Vice-Admiral Sir Joseph Chambers, K C B , C M G , Medical Director-General of the Navy, *in the chair*, the sum of £135 was distributed among the several applicants

University of Cambridge —The third annual Sims Woodhead memorial lecture will be delivered in the Arts School, Bene't-street, Cambridge, on Thursday, Jan 27th, at 5 15 P M , by Mr W McAdam Eccles, whose subject will be Alcohol in the Light of Modern Research Points Accepted and Disputed The Vice-Chancellor will preside The memorial secretary is Mrs D Moore, Cambridge-road, Histon, and seats will be reserved on a *train from London*

Amalgamation of Army Nursing Services —Queen Alexandra's Imperial Military Nursing Service and Queen Alexandra's Military Families Nursing Service have been amalgamated by Royal Warrant The combined service will be named " Queen Alexandra's Imperial Military Nursing Service," and its members will wear the existing uniform and badge of the Military Nursing Service

Gresham College —Four lectures entitled a Survey of the Public Health will be delivered at 6 P M on Jan 25th, 26th, 27th, and 28th, by Sir Robert Armstrong-Jones, at Gresham College Basinghall-street, London, E C The lectures will be based on the report for 1925 of the Chief Medical Officer of the Ministry of Health, and admission will be free

Extension of Plymouth Mental Hospital —Plymouth Town Council has decided to spend £110,000 upon the first instalment of necessary extensions of Blackadon Mental Hospital , the entire scheme is expected to cost £216,000 The works now authorised include an admission hospital, an infirmary , and a nurses' home

Coventry Hospital —A cheque of £21,650, made up largely of weekly contributions by work-people, has been handed over by the Coventry Hospital Saturday Committee *to the local hospital*

Accidents and Inquests in Leeds —The annual report of the Leeds city coroner shows a big increase in the number of deaths due to accidents on the road In 1926 the number of inquests held in these cases increased from 50 to 77 The total number of cases reported to the coroner was 682, and 631 inquests were held

Wolverhampton Hospital —The Wolverhampton and Staffordshire Hospital is about to be enlarged by the erection of new out-patient and casualty departments and the provision of two children's wards, at a cost of £16,000 A suite of rooms separate from the out-patients' department, is to be provided for accidents and casualties, and the present 20 cots for children will be doubled

Fellowship of Medicine and Post-Graduate Medical Association —On Thursday, Jan 27th, the opening lecture of the new series on Emergencies in Medicine and Surgery will be delivered by Dr L S Burrell at 5 P M at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square The subject is Hæmoptysis On Tuesday, Jan 25th at 2 P M Mr Victor Bonney will give a special demonstration for the Fellowship at the Chelsea Hospital for Women On the same date, at 3 15 P M , Dr Malcolm Donaldson will give a lecture on Salpingitis at the Royal Northern Hospital These lectures and the demonstration will be open to members of the medical profession without fee From Jan 31st the London School of Dermatology (*St John's Hospital*) will hold a four week's clinical course consisting of instruction in the out-patient department and bi-weekly lectures Classes in pathology will be arranged if required From Feb 7th the London Lock Hospital will give a four weeks' clinical course in Venereal Diseases, together with a formal series of lectures Starting on the same date there will be a two weeks' combined course in Diseases of Children in which the Paddington Green and *Victoria* Hospitals will participate , there will be morning and afternoon sessions The Royal Northern Hospital is *holding* a course for general practitioners for one week from Feb 21st, no fee will be charged The Fellowship also arranges for courses in obstetrics and anæsthetics Arrangements can be made for obtaining appointments as clinical assistants at the Samaritan Hospital Syllabuses of the special courses and copies of the programme of the general course and of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

Royal Institution —On Friday, Jan. 28th, at 9 P M , *Prof* E P Cathcart will lecture on the Physique of Women Employed in Industry

Donations and Bequests —Mr. Robert Bower Sharp, Fernhall, Broughty Ferry, jute merchant, besides bequests to employees, gave £5000 to the Royal Victoria Hospital, £3000 to the Sidlaw Infirmary, £2000 to the Convalescent Home, Barnhill, and £3000 to the Dundee Sick Poor Nursing Society

Dental Beds in a General Hospital —The Royal Dental Hospital has arranged for 12 beds in a London general hospital to be at its disposal for use by such of its patients as are in need of hospital treatment The intention is that dentists from the Royal Dental Hospital shall perform their most serious operations at the general hospital so that patients may be properly cared for both before and after the operation

Royal Alexandra Hospital for Sick Children In memory of Queen Alexandra, it has been decided to build a new block at the Royal Alexandra Hospital for Sick Children, Brighton, at a cost of £10,000 The new block will include an irradiation clinic, an up to date operating theatre, a room for anæsthetics, and additional accommodation for the resident medical staff It is hoped to complete the work in 1928

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES

ROYAL SOCIETY, Burlington House, Piccadilly, W
THURSDAY, Jan 27th —4 30 P M *The following papers will be read* L A Harvey The History of the Cytoplasmic Inclusions of the Egg of Ciona Intestinalis (L) during Oögenesis and Fertilisation (Communicated *by Prof* E W MacBride) S *Dickinson* Experiments on the Physiology and Genetics of the Smut Fungi Hyphal Fusion (Communicated by Sir John Russell) J W H Harrison Experiments on the Egg laying Instincts of the Sawfly Pontania salicis Christ and their Bearing on the Inheritance of Acquired Characters with Some Remarks on a new Principle in Evolution (Communicated by Prof E W MacBride) S A Asdell and F H A Marshall The Effect of the Ovarian Hormone in Producing pro-Œstrous Development in the Dog and Rabbit E Ponder The Measurement of Percentage Hæmolysis II (Communicated by Sir E Sharpey Schafer)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W
MONDAY, Jan 24th —8 P M , ODONTOLOGY Dr J H Maclean The Bacteriology of Dental Caries *Prof* H P Pickerill (New Zealand) Non eruption of Teeth
TUESDAY —5 P M , MEDICINE SURGERY, LARYNGOLOGY Special Discussion on the treatment of Chronic Non-Tuberculous Infection of the Lungs Speakers Dr L S T Burrell, Dr F Chandler Dr Geoffrey Marshall Dr K Douglas Wilkinson (Medicine), Mr Tudor Edwards, Mr J E H Roberts, Mr H S Souttar (Surgery), Mr G Ewart Martin, Mr C A S Ridout, Mr V E Negus (Laryngology)
WEDNESDAY —5 P M , COMPARATIVE MEDICINE *Paper* Dr T W M Cameron The Parasites of Animals and Human Disease
THURSDAY —8 30 P M UROLOGY Mr Graham S Simpson, Hæmangioma of the Kidney Mr F J F Barrington Nerve supply of the Bladder
FRIDAY —5 P M , STUDY OF DISEASE IN CHILDREN (Cases at 4 30 P M) 8 P M , EPIDEMIOLOGY AND STATE MEDICINE Dr M Greenwood and Dr Janet Lane Claypon On the Possibility of Effecting a Reduction in the Present Mortality rate from Cancer of the Breast and of the Uterus Exhibit Fleet Surgeon W E Home will show a Jenner letter and a portrait, in oil of Francis Home (1719–1812)

MEDICAL SOCIETY OF LONDON, 11, *Chandos street*, Cavendish square, W
MONDAY, Jan 24th —8 30 P M , *Pathological Evening*

ST JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY (Incorporating the London Dermatological Society), 49, Leicester square, W C
WEDNESDAY, Jan 26th —4 15 P M., Clinical cases will be shown

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W
MONDAY Jan. 24th, to SATURDAY, Jan 29th.—FELLOWSHIP OF MEDICINE Special lecture at the Medical Society of London, 11 Chandos street, Cavendish square W Thurs, at 5 P M, Dr L S Burrell Hæmoptysis Free to members of the medical profession —CHELSEA HOSPITAL FOR WOMEN Arthur street, S W Tues, 2 P M, Mr Victor Bonney Special Demonstration. Free to members of the medical profession. —BETHLEM ROYAL HOSPITAL, S E Tues and Sat., 11 A M Lecture demonstrations on the Psychoses

NORTH-EAST LONDON POST GRADUATE COLLEGE Prince of Wales's General Hospital, Tottenham N
MONDAY Jan 24th —10 A.M., Surgical Clinic 2 P M Medical Cases in the Wards 2 30 P M to 5 P M., Medical, Surgical, and Gynæcological Clinics Operations
TUESDAY —2 30 P M to 5 P M Medical Surgical, Throat Nose and Ear Clinics Operations
WEDNESDAY —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations
THURSDAY —11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations
FRIDAY —10 30 A.M Throat Nose and Ear Clinics 2 30 P M to 5 P M Surgical Medical and Children's Diseases Clinics Operations

POST-GRADUATE HOSTEL, Imperial Hotel, Russell square, W C
TUESDAY, Jan 25th —9 P M, Prof. C C Choyce Pre-Listerian Surgery
THURSDAY —9 P M, Symposium The Thyroglossal Tract Chairman Mr W G Spencer Speakers Mr A P Bertwistle Sir J Dundas Grant, W McAdam Eccles, and Prof J E S Fraser

CENTRAL LONDON THROAT NOSE AND EAR HOSPITAL, Gray's Inn road, W C
FRIDAY, Jan. 28th —4 P.M, Mr J D McLaggan The Treatment of Chronic Suppurative Otitis Media

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital 49 Leicester square, W C
TUESDAY Jan 25th —5 P M, Dr A. C Roxburgh The Erythrodermias
THURSDAY —5 P.M, Dr Knowsley Sibley Electrotherapeutics

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE
TUESDAY, Jan 25th.—3 15 P M Dr Malcolm Donaldson Salpingitis Free Tea at 4 15 P M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W C
THURSDAY Jan 27th —4 P M, Mr Doyne Cataract in Infancy

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester
WEDNESDAY Jan 26th.—4 15 P.M. Dr S Herbert Physical Factors in Physical Disease

UNIVERSITY OF SHEFFIELD POST GRADUATE CLINICS
FRIDAY, Jan 28th.—3 30 P.M. (at the Royal Hospital), Dr Abercrombie Clinical Cases

Appointments.

BRIDGE, J C F R C S Edin, has been appointed Senior Medical Inspector of Factories

DONNAN J M M.B Ch B Edin., Police Surgeon and Police Medical Attendant Dumfries

DUNN JEANNIE P M.B Ch.B Edin. D P.H, Medical Officer of Health for Dumfries

KERR, J. M. M. M.D C M Glasg F R F P S Glasg Regius Professor of Midwifery in the University of Glasgow

Vacancies.

For further information refer to the advertisement columns

Adelaide University, South Australia—Elder Professorship of Anatomy £1100

Banchory Sanatorium—Med Supt

Birkenhead Borough Hospital—Hon. S and Hon P

Bradford Municipal General Hospital, St Luke's—H.P's and H.S's Each at rate of £200

Bradford Royal Eye and Ear Hospital—H.S £120

Bristol Mental Hospital—Second Asst M O £400

Cambridge Addenbrooke's Hospital—Cas O and Res Anæsthetist At rate of £130 Also Hon Asst P for Electrical and X Ray Dept Also Hon Asst S to Ear Nose and Throat Dept

Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W C—Res H S £75

Colindale Hospital Hendon, N W—Jun Asst M O £500

Croydon General Hospital—Hon Jun P

Ealing Borough—Asst M O H £600

Elizabeth Garrett Anderson Hospital, 144, Euston-road N W—Children's P

Home Office, Whitehall, S W—Medical Inspector of Factories, £600, with bonus

Italian Hospital Queen-square, W C—Hon Asst Anæsthetist

London Hospital E—Asst P

London Jewish Hospital, Stepney Green, E—Asst S to Ear, Nose and Throat Dept

London Lock Hospital 91 Dean-street, W—H S At rate of £200

Macclesfield General Infirmary—Second H S £150

Manchester Christie Hospital, Lorne-street, Upper Brook-street, Anæsthetist £25 for one morning weekly or £50 for two mornings

National Hospital Queen square, W C—Registrar £200

Newcastle-on-Tyne Northern Counties Institution for the Deaf and Dumb—M O

Northampton General Hospital—Two H S's Each at rate of £150 Also Hon Asst Surg

Oswestry Shropshire Orthopædic Hospital—Jun H S £150–£250

Queen's Hospital for Children, Hackney-road, E—Cas O At rate of £100

Royal Chest Hospital City road E C—Pathologist £300

Royal National Orthopædic Hospital, 234, Great Portland street, W—Hon S Hon P, and Hon Dental Surg

Royal Waterloo Hospital for Children and Women, Waterloo-road, S E—Hon Med Reg

St Marylebone General Dispensary 30 Marylebone-lane W—Hon Dent S Also Dent S to L C C Dental Clinic

St Thomas's Hospital S E—Surg to Out-patients

Shrewsbury, Royal Salop Infirmary—H S £250

Southampton Royal South Hants and Southampton Hospital—Hon Asst P

Stoke on Trent North Staffordshire Royal Infirmary—Radiologist, £500

University College Hospital, Gower street W C—Hon Associate P and S

University College Hospital Medical School, University street, Gower street W C—Demonstrator in Bacteriology £250

Walthamstow Wanstead and Leyton Hospital, Oxford road, E—Hon Radiologist Also Pathologist

Welsh Board of Health—M O £600

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the District of West Bromwich County Court (Circuit No 25) Applications should reach the Private Secretary, Home Office, not later than Feb 4th

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Crickhowell (Brecknockshire) Newton Mearns (Renfrewshire), St Columb (Cornwall), and Shefford (Bedfordshire)

Births, Marriages, and Deaths.

MARRIAGES

LOUGHBOROUGH—MATHER.—On Jan. 12th in London, Dr G Trevor Loughborough of Bentinck-street, W, to Mrs B Vanstone Mather, of Ashley gardens, S W.

DEATHS

JONES —On Jan 10th, at a London nursing home, William Percy Jones, M.D, late of Brent, South Devon.

LARKIN —On Jan 13th, at his residence Craven House, Grove Park, Kent, Frederick George Larkin, F R C S Eng (honorary) in his 80th year

OWEN —On Jan 14th, in Paris, Sir Isambard Owen, M.D, F R.C P, D C L, LL D &c., Consulting Physician to St George's Hospital, aged 76

PASMORE.—On Jan. 12th, at Chelsham House, Warlingham Surrey Edwin Stephen Pasmore, M.D M.R.C P, Medical Superintendent, Croydon Mental Hospital

SHAW —On Jan. 14th after a short illness Thomas Clave Shaw, M.D F R.C P, M.R.C S of Claremont Lodge, Cheltenham, and Queen Anne-street London.

N.B —A fee of 7s 6d is charged for the insertion of Notices of Births Marriages, and Deaths

INDEX TO "THE LANCET,"
VOL. II, 1926

THE Index and Title-page to Vol II, 1926, which was completed with the issue of Dec 25th, is now in preparation A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W C 2 Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Notes, Comments, and Abstracts.

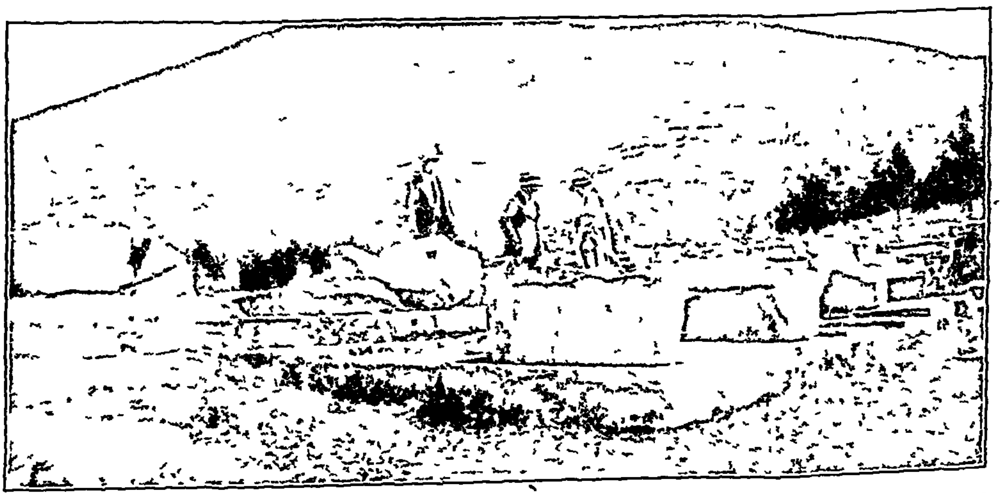
MEDICINE IN ANCIENT GREECE

Sir James Berry (the President) and Lady Berry received the guests at a social evening held by the Royal Society of Medicine on Jan 17th, when Prof A W Sheen gave a short address on Greek medicine

He began by tracing the mythical career of Æsculapius, the God of Medicine, who was depicted a commanding figure, leaning upon his serpent-entwined staff He was a pupil of Cheiron, the kindly centaur, but unlike his companions, who trained as warriors, Æsculapius dug up healing herbs and learnt their virtues So proficient in healing did he eventually become that Pluto feared the underworld would lose its population and killed Æsculapius by the hand of a Cyclops Apollo, his father, was angered and Æsculapius was made a god Prof Sheen illustrated the story with lantern slides showing the daughters of the God, Hygeia and Panacea, and a group of suppliants approaching the God and his family The sacred serpent is a feature of all ancient statuary and is still the badge of medicine

In Homer references to medicine are frequent Podalirius and Machaon were warriors as well as physicians and brought ships and men to the war "Full thirty sail the sparkling waves divide, which Podalirius and Machaon guide " They were held in high esteem, for "a wise physician skilled our *wounds to heal, is more than armies to* the public weal," and, when Machaon was wounded there was great consternation amongst the Greeks for, said one, "a physician is worth a host of other men" A woman who might be described as the first trained nurse in history—"Hekamede of the beautiful hair"—attended Machaon in Nestor's tent, gave him a stimulating drink and dressed his wound Malaria and rickets are indicated in Homer, also the "drink of oblivion" (probably opium), but references to wounds predominate, for the gods could suffer from injury but not diseases A beautiful vase-painting shows Achilles bandaging the arm of the wounded Patroclus, from which it is evident that he was an amateur in the art

Fig. 1.



The Temple of Æsculapius at Epidaurus, from a photograph by Mr Laming Evans The visitors are the President of the Royal College of Physicians of London, Lady Bradford, and Sir Hector Mackenzie

Solon, the great law-giver (B C 638) described physicians as follows "Others, who have the profession of Paion, god of medicines, are the physicians, neither on their labours is any certain issue fixed Often from a trifling pain comes great suffering, and no man can alleviate it by administering soothing drugs But sometimes, when a man is afflicted with disease fell and fierce, the physician by touching him with his hands at once makes him whole"

Clinics and Temples

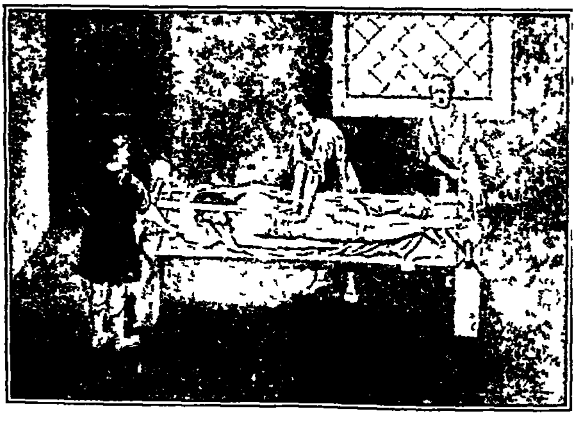
Describing the development of Greek medicine, Prof Sheen drew attention to the Iatria or surgeries, and showed pictures illustrating their work and the instruments used in them One vase-painting shows the medical practice, the physician is letting blood, a patient smells a flower, another awaits bleeding, whilst other patients are a man with bandaged leg, a dwarf, and a man leaning on a staff He quoted Aristophanes' description of physicians "Lazy, long-haired, foppish individuals with rings and carefully polished nails" With orthodox physicians were mixed up quacks of various kinds, human needs being served and human weaknesses exploited in the manner of to-day

Of the numerous health temples that at Epidaurus was described, and a photograph of the ruins was shown (Fig 1) Beautifully situated in the pure air of the hills the many buildings with open air wards permitted development of rational treatment alongside priestly methods The Temple of Æsculapius contained the great gold and ivory statue of the God, whilst in the "pump room" were two paintings, one of Methe (drunkenness) looking through a wineglass, the other of Eros (love) laying aside his quiver for the lyre—a less dangerous weapon Perhaps the paintings were there as salutary warnings to the patients Deciphered tablets from the walls of the wards show most remarkable cures Heraieus of Mytilene, for instance, had no hair on his head, the God applied an ointment and next morning *the head was thickly covered with hair* Another inscription indicates the treatment of dropsy by cutting off the patient's head, holding him by his heels and letting the fluid run out after which the head is put on again Sane method of treatment undoubtedly developed in spite of such absurdities

Hippocratic Period

The great period of Greek medicine was reached in th time of Hippocrates, "the father of medicine," who live *in the latter half of the fifth century* B C Hippocrates wa a rational clinical physician whose work has endured for al time Prof Sheen described the School of Hippocrates th Health Temple on the Island of Cos, situated 400 feet u on a south-facing hill, and in its general arrangement muc resembling Epidaurus He quoted many of the saying o Hippocrates "And this I know that to the human bod it makes a difference whether the bread be fine or coarse" is evidence of a modern opinion The Hippocratic facies "A sharp nose, hollow eyes, collapsed temples, the ea cold, contracted and their lobes turned out, the skin abo the forehead being rough, distended and parched, t colour of the whole face being green, black, livid or le coloured," gives a very true description of impendi death, and may be compared with Shakespeare's dy Falstaff "His nose was as sharp as a pen and he babbl of green fields" Cheyne Stokes breathing was th described "The respiration throughout, like that of person recollecting himself was rare and large," whilst t duties of a physician were summarised as follows "T physician must be able to tell the antecedents, know t present and foretell the future—must meditate these thin and have two special objects in view with regard to diseas namely, *to do good or to do no harm* The art consists three things—the disease, the patient, and *the physicia* The physician is the servant of the art and the patient mu combat the disease along with the physician" Arrang ments for operation, said Prof Sheen, were given in gre detail by Hippocrates and his school The *instruction* th "the robe in a neat and orderly manner is to be thrown over the elbows and shoulders equally and proportionately," suggested a pleasing contrast to the blood-bespattered old frock coat of not many years ago, whilst the following injunction to silence was apposite to day "Those about the patient . must hold the rest of the body steady, in silence, and listening to the commands of the operator" The treatment of fractures was quite modern Besides splints—sometimes recommended only to avoid blame from the common people—waxed bandages were used and readjusted on the third and seventh days "The model by which we judge the part be properly set is the sound part of the same name or the part which is its pair," which sound advice is sometimes neglected nowadays

FIG 2



A Hippocratic bench

[*Wellcome Historical Museum* (copyright)

The history of the Bench of Hippocrates through the ages, continued Prof Sheen, is quite romantic It was a "proper wooden machine with all the mechanical powers applicable in cases of fractures and dislocations For this purpose it will be sufficient to possess a board in length, breadth and thickness resembling the quadrangular threshing-boards made of oak" (Fig 2) A refectory table discovered in an old Italian monastery was found on "dissection" to be a Bench and is now in the Wellcome Historical Medical Museum, London The Hawley table is the Bench's modern counterpart

The celebrated aphorisms of Hippocrates—412 in number —were next alluded to "Life is short and Art long, the occasion fleeting, experience fallacious and judgment difficult," and another, "Where sleep puts an end to delirium it is a good symptom" were given as evidence of their quality The "succussion splash" was thus described "You will place the patient on a seat which does not move, an assistant will hold him by the shoulders and you will shake him applying the ear to the chest so as to recognise which side the sign occurs" The attitude of Hippocrates towards epileptic fits well illustrated his rational mind "It is thus with regard to the disease called Sacred, it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other affections Men regard its nature and cause as divine from ignorance and wonder because it is not at all like to other diseases" The Oath of Hippocrates showed his high ideals of work and service Not even casual conversation is to be repeated "Whatsoever I shall see and hear in the course of my profession, as well as outside my profession in my intercourse with man, if it be what should not be published abroad, I will never divulge, holding such things to be holy secrets"

Conclusion

Prof Sheen quoted what he called a truly Hippocratic maxim from Plato who says—through the mouth of Socrates in the Charmides—"that where there is eye trouble you must treat the head and you cannot treat the head without treating the whole body" He referred to Herophilus (B C 300) whose name is preserved in the term, Torcular Herophili, and to his wonderful fragment, "Science and Art have equally nothing to show, strength is incapable of effort, wealth useless, and eloquence powerless if Health be wanting" He concluded his address with his favourite Hippocratic sentence "Where the love of man is, there is also love of the Art"

HEALTH AND SANITATION IN IRAQ

IN the recently published report by H M Government to the Council of the League of Nations on the administration of Iraq for the year 1925, considerable space is devoted to medical and sanitary matters

Distress Caused by the Severity of the Weather

The winter of 1924–25 was marked by its extraordinary severity In Baghdad until the middle of February the temperature fell frequently at night below freezing point, in the north and in the highlands of the eastern provinces snow and extreme cold devastated the flocks, and if on the southern desert border the cold was less severe, both flocks and shepherds were less accustomed to bear it, and suffered great distress Very little rain fell, and that which occurred during the frost was useless to cultivators The spring harvest was, in consequence, exceptionally bad, and the summer harvest was equally affected by lack of water in the rivers for irrigation purposes Already, in February, the Council of Ministers agreed to exempt from customs duties imported wheat, barley and flour, in view of the alarming high prices which had been reached But in the north the situation went from bad to worse owing to the ravages of locusts, and by the autumn the shortage of grain was so disastrous that steps for the relief of an almost starving population were necessary Seed grain for the ensuing harvest had also to be provided in many parts of Iraq, and loans issued to needy cultivators

Health Services

During the year the health service has continued its steady progress and development, free for the first time in its history from the fear of experimental budget reductions, and happy in the thought that its organisation and scope of work appeared to be at last on an accepted basis The service has fortunately been free from anxieties in the shape of severe epidemics or other abnormal outbreaks of disease amongst the population During 1925 the service maintained 18 hospitals and 53 dispensaries in the different liwas of Iraq The total number of beds in all the hospitals in the country is 1170 The Maude Memorial Hospital at Basra has been completed, and all its departments are now functioning with the exception of a ward for women which it is hoped to furnish and staff in the new financial year

Infectious Diseases

There has been nothing abnormal in the number of cases reported of the various infectious diseases with the exception of plague, of which only 20 cases were noted This is by far the lowest figure since the British occupation of the country The reason for this very low incidence of plague was undoubtedly the cold weather of the winter of 1924–25, which killed off a large proportion of the animal population and amongst which the rat population suffered very severely An additional favourable factor was the effect of the cold weather on the fleas, conditions being very unfavourable for their breeding in the early spring, the season when they are usually most prevalent It would be very unwise to deduce that this very low incidence of plague will tend to continue, and, as a matter of fact, at the moment of writing this report, conditions are such that it appears probable 1926 will be a bad plague year

An increase of small-pox is accounted for by epidemics amongst tribes in the Amara, Kirkuk and Muntafiq liwas

Enteric group diseases appear to be definitely on the increase during the last five years Reported cases are diminishing in Basra, while they are increasing in other areas The increasing incidence of measles and mumps within the period is of no particular importance, notification is better amongst the tribes The increase of tuberculosis is apparent only, for example, 147 cases are reported this year from Karbala compared with 95 in 1924, and 8 only in 1923 Re reporting of old cases and the personal factor of the reporting medical officer or general practitioner are the most probable cause of the increase

The table of patients treated in health service institutions in the various liwas shows that the institutions are doing very good work, and that there is a steadily growing appreciation of the facilities provided

Prostitution

A form of control exists in all towns where recognised prostitutes practise, and there is no doubt that where the powers of control are honestly enforced, a benefit to the public results, though the actual benefit is impossible to estimate by any statistics that can be obtained as to the incidence of venereal disease amongst the general public Under present conditions the problem of prostitution is impossible of solution in Iraq, the chief obstacle being that in Iraq, as in the majority of eastern countries, once a woman has taken up, or been forced into, prostitution she has no means of escape from it, since there are practically no occupations in which an independent woman can earn an honest living Compulsory prohibition of prostitution, or enforced cessation from practise of infected prostitutes if efficiently enforced, would be a sentence of death to thousands of these women, unless the Government could provide institutions for their maintenance for the rest of their lives

Public Health

The whole of the institutions of the Health Service play their part in the combat of epidemic and endemic disease With the exception of the liwas of Basra and Baghdad, the health authorities of each liwa is the civil surgeon who has charge of all institutions, is also responsible for all sanitary measures for the combat of infectious disease, and is the adviser on sanitary matters to all municipalities in his area The Port and Liwa of Basra are under the sanitary control of a specialist health officer, and the epidemiologist attached to the headquarters of the Health Directorate has special sanitary control over the Baghdad Liwa in addition to his general duties, which also include control of the pilgrim traffic These arrangements work well in practise, and Iraq may be considered as possessing an efficient sanitary organisation for the combat of infectious diseases The only assistance that the country requires from outside sources in this connexion is the establishment of research laboratories for the study of malaria bilharzia, and other endemic diseases of the country, such as have been provided by the Rockefeller foundation in other parts of the world

Pilgrim and Corpse Traffic

The control of pilgrims and of the transit of corpses for burial in the holy cities of Iraq has been greatly strengthened The Corpse Traffic Law was passed at the end of 1921, and came into full operation in March, 1925 This law provides for examination of corpses at the frontier of Iraq by quarantine officials, the issue of transit passes, and the checking of these passes by quarantine officials at the place of burial Prior to the operation of this law a large amount of corpse smuggling was taking place, the corpses once within the country passing as local corpses and being free from transit fees or other interference The new system, by which special transit passes for local corpses are also required, renders it impossible for corpses to be buried at the holy cities without production of a pass or payment of transit dues A large amount of smuggling is still taking place but this now only results in a loss of revenue, without loss of sanitary control, since all corpses in transit are now inspected whether of foreign or local origin The numbers of foreign and local corpses for which transit permits were issued since April, 1925, were 4124 and 12,178 respectively The issue of passes for pilgrims has also been taken over this year by the Health Service at the Quarantine Station of Khanaqin and the number of pilgrims examined and given passes at this station during 1925 was 18,199 (15,318 males and 2851 females) It will be observed from these figures that the pilgrim traffic is resuming its normal figures, this is due to more stable conditions in Persia Owing to troubles in the Hejaz and in Syria no pilgrimage to Mecca took place from Iraq either by the sea or overland routes

Medical Education

The Government maintains a school of pharmacy and provides facilities for the training of midwives, nurses, dressers, and vaccinators It is a matter for regret, however, that its finances have not as yet allowed it to institute a school of medicine for the training of doctors Skilled personnel exist in the Health Service who could undertake all necessary professional duties, special institutions exist which could be used for educational purposes, and the cases treated at the Royal Hospital in Baghdad afford magnificent facilities for the instruction of medical students The sole obstacle to the establishment of a school is the question of a suitable building for its accommodation, which must be in a site immediately adjacent to, if not in the grounds, of the Royal Hospital

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ORDEAL BY BATTLE

Two correspondents have written to correct and expand a misleading historical reference in a recent article on "Standing Mute of Malice" It was there stated that Abraham Thornton had recourse to the obsolete legal process of ordeal by battle in 1817 "and thus evaded the consequences of a conviction for murder" Thornton was protecting himself against the risk—some might call it almost the certainty—of a conviction but he was never actually convicted His story was summarised in THE LANCET of April 3rd, 1926, in a review of Sir John Hall's volume in the 'Notable British Trials" series Thornton was acquitted at Warwick Assizes, but public opinion was so sure of his guilt that an obsolete procedure (appeal of murder) was invoked to obtain a re-trial To this he replied with his offer of battle Both these ancient processes were abolished by the Statute 59 Geo III c 56

PUBLIC HEALTH IN BRITISH HONDURAS

IN his report on this Colony for the year ended Dec. 31st, 1925, Mr C Douglas-Jones, Colonial Secretary, states that the estimated population is 47,893 (23,683 males and 24,210 females) The birth-rate for the year worked out at 37 27 per 1000 of the estimated population The deaths corresponded to a rate of 21 38 per 1000. The principal causes of death, in order of frequency, were diseases of the digestive system, diseases of the circulatory system, and diseases of the respiratory system. There were 29 deaths from malaria, 6 from influenza, 50 from pulmonary tuberculosis, and 21 from enteritis An outbreak of dysentery occurred in the lunatic asylum, in which 26 cases were treated, with 8 deaths Malaria, while being prevalent, was of a mild type, there being only 29 deaths certified by medical practitioners as due to this cause Pulmonary tuberculosis seems to be on the increase, both in the town of Belize and in the districts Symptoms of hydrophobia were shown by dogs in Belize in April, but it was not until June that a fatal case of rabies occurred The total number of deaths from this cause was four A muzzling order was introduced, and the shooting of unmuzzled dogs within certain hours had the desired result of exterminating all stray dogs and checking the spread of the disease Anti rabies vaccine has been used with success The climate of British Honduras compares favourably with that of other tropical countries with small European population Europeans leading a normal life and taking common precautions find the climate pleasant and healthy The highest rainfall was as usual at Punta Gorda in the Toledo district, which had a total of 207 68 inches and 221 days on which rain fell The lowest rainfall was at Corozal, which had a total of 34 12 inches At Belize the rainfall was 86 01 inches The hottest day was May 25th, on which the thermometer registered 91 5° and the coldest day was Nov 24th, when it registered 50 5° F

HERPES AND VARICELLA

To the Editor of THE LANCET

SIR,—The following case is of interest in connexion with the alleged relation between herpes and varicella On Dec 20th, 1926 a gardener developed herpes zoster ophthalmicus On Jan. 5th, 1927, his three children, two girls aged 8 and 9 years respectively, and a boy aged 5, all showed definite chicken-pox The source of this outbreak of varicella could not be traced apart from the above-mentioned herpes The time between the herpes and chicken-pox is sixteen days The children were seen by me at one of the school clinics

I am, Sir, yours faithfully,
FREDERICK W GAVIN, M B, Ch B, D P H,
Asst M O, Surrey C C
Jan 18th, 1927

AN IRRADIATION CLINIC

A REPORT by the Health Committee of the Northamptonshire County Council gives a preliminary account of some results obtained with an installation for ultra-violet radiation recently provided at the Wellingborough Dispensary, primarily for the treatment of lupus A total of 25 patients have been in attendance for irradiation, 12 were suffering from lupus and allied conditions, 10 were pre-tuberculous and had been selected for treatment on account of general debility, failure to gain weight, or wasting, and 3 were suffering from pulmonary tuberculosis The whole group of cases exclusive of those suffering from pulmonary tuberculosis, has shown a total gain in weight of 65 lb and a loss of 1 lb as compared with a gain of 12 lb and a loss of 15 lb in the three months before this treatment was started All the cases of lupus show marked improvement A discharging tuberculous abdominal sinus of three years' duration is soundly healed, a case of lupus pernio of three years duration is healed and normal, and two cases of discharging tuberculous glands in the neck associated with gross keloid are practically healed and promise good cosmetic result A case of facial and intranasal lupus has so far improved that the face is normal and the nasal mucous membrane reveals no signs of disease, a case of extensive and severe lupus erythematosus has remarkably improved, whilst another case of ordinary lupus is soundly healed and has gained 5 lb in weight It was noticed that associated conditions such as boils and blepharitis cleared up quickly when their tuberculous lesions were treated by irradiation The pre-tuberculous children gained in appetite and general brightness and the only cases in which there has been little or no improvement are those of pulmonary tuberculosis It is considered too early, however, to assess the value of irradiation in this disease

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FORTY-THREE YEARS A CORONER—*On Jan* 15th Mr S Brighouse, who is 77, completed 13 years as coroner for South-West Lancashire He has conducted over 20,000 inquests, including the famous Maybrick inquiry

Hastings Lecture

[ABSTRACTED]

ON

CANCER AND HOW TO FIGHT IT

Delivered before the British Medical Association on Jan 24th, 1927,

BY SIR BERKELEY MOYNIHAN, BART, K C M G, C B, M S LOND,
SENIOR SURGEON, LEEDS GENERAL INFIRMARY, PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

A SURVEY of the progress of medicine during this century shows that we are, little by little, but very surely, obtaining control over certain diseases which were formerly the plagues of mankind In comparison with them cancer not only shows no decrease, it is actually gaining ground In the last 20 years the general death-rate has fallen by 32 per cent, the infant death-rate by 45 per cent, the tuberculosis death-rate by 38 per cent, while the cancer death-rate has increased by 20 per cent In the last 70 years the mortality from cancer has increased five-fold.

Attempts have been made to explain this increase (*a*) by consideration of the fact that the average expectation of life having increased, a larger number of people live to the cancer age, and (*b*) by ascribing it to increased accuracy of diagnosis To some extent both explanations are true But the average duration of life is longer chiefly because of the lower infant mortality Dr Leonard Hill says .—

> "The expectation of life has gone up for infancy but not for the period of late middle age There is no problem of what we are to do with our grandfathers, they are living scarcely any longer than they did 50 years ago"

And if we pay regard to those cases in which diagnosis can never have been difficult, because the disease was near the surface and easily seen or felt, we find that the second argument is not sustained For example, in cancer of the tongue there has been an increase of 39 per cent, and in cancer of the breast of 28 per cent in the last 20 years It must also be remembered that some few diseases called cancerous in other days are now known to be simple

BELATED SURGICAL TREATMENT

This increased mortality from cancer, chiefly in the alimentary canal, has occurred despite the fact that more people than ever are being cured of cancer The operations practised to-day are more frequent, of greater extent, of greater safety, and attended by a larger measure of permanent relief from the disease than was the case 20 years ago Montaigne thought the doctor among the most fortunate of beings, because the sun shone upon his successes, while his failures were buried in the tomb But this is not altogether true We hear of deaths from operations, of recurrence of cancer after its removal, we hear little even from the rescued of their *freedom from this disease*

If it is true, as it is indubitably true, that permanent relief from cancer is being secured by our present *methods* in large numbers of cases, the question naturally arises as to why this is not more often possible We are all a little to blame Medical men are sometimes, though I am glad to think not very often, inclined to watch the earlier phases of this disease, *especially* when attacking internal organs, until it is certain that the condition is malignant The certainty of diagnosis is often the *certainty* of death If we wait until we know, we wait until we cannot cure And the public is in part to blame, for among them *there is great ignorance* of the possibilities and the achievement of surgery, and ignorance is the parent of unbelief The patient who *discovers*, say, a tumour in the breast says to herself "There is something wrong here, it may be cancer, if it is cancer I must undergo an operat*ion*, *if I* do I may die, if I survive the disease may come back, if it returns I must submit once again to operation with all its risks—even then the disease may recur; it is a hopeless and depressing prospect I had better not mention the fact of the lump" At last she submits to a rescue operation when the chances now are all against the surgeon

Unhappily, it is not very infrequent for the delay to be encouraged by the wasteful trial of other methods The "cancer curer" is still a curse in the land, and the most pathetic credulity as to his claims is shown by people who should know better Cancer never yet was cured by the quack, but infinite harm has come to patients from the delay which foolish, impotent, and pernicious practices have involved

EDUCATION AND FEAR

Cases of cancer may conveniently be divided into (1) those in which the growth is lying either on or near the surface of the body, or is attacking organs or parts of organs which can with no great difficulty or danger be removed, and (2) those in which the growth is relatively inaccessible, lies out of sight, cannot be felt, and only reveals its presence by symptoms, or after examination by X rays In these cases an operation may be difficult, impracticable, or even impossible

It is obvious that two methods of attack must be followed In the first place we must so instruct the public and educate ourselves that those cases of cancer in which complete eradication of the disease is surgically possible shall be recognised and treated at the earliest moment The operations now practised have almost reached their limits not only in their extent and in the safety with which they can be performed by expert surgeons, but also in respect of the pain or discomfort they inflict We can make surgery safe and even more successful, not by strengthening the arm of the surgeon, but by enlisting the help of the patient; by encouraging him with the knowledge that accessible growths are capable of complete removal, with small risk, and with permanent freedom from recurrence, if only they can be reached in time And in the second place we must carry out all manner of research so that inaccessible cancer shall also be treated with success or even prevented.

With regard to the education of the public there are certain disadvantages, some fanciful, some real It is said that if we "talk cancer" we shall make people "think cancer" We hope that is true We do not wish the public to "forget cancer" For cancer is an unforgiving enemy, and once he has settled upon his victim he never for one single moment ceases to grow, and the sooner you confront your foe the better for you and the worse for him It is said that we shall increase fear That I firmly believe is impossible If we can help the public to learn that it is not cancer, but ignorance with regard to cancer, that is in part responsible for their horror of it, and if we can assure them that cancer under certain conditions and when attacking certain organs is capable of complete removal with permanent freedom from a return of the disease, shall we not be able to diminish or even to banish this horror? Fear should be the fear of delay; the fear lest a simple disease may become cancerous, the fear lest a local and, therefore, curable cancer should increase until it becomes generalised and incurable Knowledge will bring freedom from fear

Two consecutive events must be secured: the awakening in the patient's *mind of a need to consult* the doctor, and action by the doctor, who, in turn, seeks aid from the surgeon. Unless, therefore, a patient knows something of the antecedent conditions of cancer, of its early manifestations, of the importance of early treatment, how is he to realise *that a medical* man should be consulted without the delay of one single day?

WHAT THE PUBLIC SHOULD BE TAUGHT

The following are some of the truths it is important for the public to know —

(1) Cancer is always at first a local disease, spreading by direct extension from the spot first affected It

is often supposed that cancer is a "blood disease"—that the blood is contaminated and that the local evidence of this is the nodule or the ulcer, recognised as cancerous All knowledge we possess refutes this view

(2) Cancer chooses to attack a diseased rather than a healthy organ This involves the necessity for us all to pay attention to health and to do all we can to keep fit. The majority of people, it may be said, commit suicide

(3) The occurrence of cancer is influenced by antecedent conditions Chronic irritation is a definite precursor of cancer, as is seen especially upon exposed surfaces

(4) The occurrence of cancer, so far as we know, is uninfluenced by certain factors sometimes regarded as "causes"—

(*a*) There does not appear to be any *hereditary predisposition* to cancer The fact that one person in seven over the age of 30 dies from cancer implies that within the limits of slight variation from this normal the incidence in any family may appear to be unduly heavy Probably few families of ordinary size escape cancer in three consecutive generations The work of Miss Maud Slye upon mice appears to show that a tendency to the development of cancer can be engendered by special breeding, but I cannot recognise any similar liability in man.

(*b*) Cancer, so far as we know, is not caused by any *special food* or foods, nor by any absence of special foods It is true that excessive indulgence in food when little or no exercise is taken will steadily and insidiously depreciate the general health, and that in such circumstances of lessened resistance a person may more easily fall a victim to cancer as to other diseases Various articles of diet have been impugned—tomatoes, fresh meat, salt, and many other—but there is no evidence that would satisfy a scientific mind that these or any other articles of diet, in excess or in abstinence, play any specific part in causing this disease So far as we know, no change in the natural history of a malignant growth has ever been observed by competent authorities to result from such dietetic control in an indisputable case of carcinoma

(*c*) There is at present no sufficient proof that *cancer-houses* or cancer-districts exist, though further inquiry may well be conducted to resolve this question

(5) The disease is neither infectious nor contagious

(6) In the early stages cancer rarely causes pain In tumours of the breast, for instance, no pain, as a rule, is caused until the skin is involved, the lump is discovered by accident, and little regard is paid to it because it causes no inconvenience or discomfort The truth that in women over 35 years of age a lump in the breast is malignant in three cases out of four needs all the repetition and emphasis that can be given to it The silence of some forms of growth in the stomach and the rectum is notorious, and in the alimentary canal it is often obstruction rather than discomfort that first attracts attention In cases of cancer, ill-health, anæmia, lassitude, distaste for food, and loss of weight are often regarded as the symptoms without which a diagnosis may hardly be made, but the existence of carcinoma is compatible with perfect health, and there may even be a gain in weight and a remarkable feeling of vigour and strength

(7) While the disease is local and when the growth is accessible cancer is curable While the disease is local the complete eradication not only of the part immediately involved, but of all the adjacent parts which are most likely to be first implicated in its extension would also cure the disease In a large number of cases, however, the growths are not accessible or lend themselves only to the most dangerous and least successful forms of surgical attack

THE CONTROL AND TREATMENT OF CANCER

If a growth is accessible and local, no other method than that of operation should be considered The difficulty is to discover whether the disease at the time the removal of the growth is contemplated remains localised, or whether it has already extended to the primary glands, or perhaps has even spread beyond them. Nothing could more clearly show the advantages of early operation than the statistics collected from the Leeds cases by Miss Gretta Wardle, under the auspices of the Leeds Cancer Committee, and published by the Ministry of Health.

The report deals with 357 cases in which the tumour was submitted to microscopic examination Dr Janet Lane Claypon classified them on the following basis (Class I Cases in which, so far as could be ascertained, the growth was entirely confined to the breast, the axillary glands not being involved Class II Cases in which the axillary glands were already invaded, but in which there was no evidence of involvement of any other neighbouring or distant organ or tissue Class III Cases in which either the adjacent or distant organs or tissues are involved—e g, the pectoral muscles, the skin when ulcerated, the cervical glands, the opposite breast, &c

Excluding cases unclassified on account of insufficient clinical and pathological data, the following are the results of operation after three, five, and ten years respectively —

	Percentage alive at—		
	3 years	5 years	10 years
Class I	89 6	85 1	71 4
,, II	36 3	18 5	5·2
,, III	28 0	13 5	5 6

These and other figures given in the report prove that cancer can be completely eradicated if the local growth is early and widely extirpated They show that the degree of success depends upon the stage of the disease attacked by the operation If, however, the growth is inaccessible, or become disseminated, then no operation can eradicate it, and recourse must be had to other methods Of these, by far the most valuable is the therapy of the deep X rays From their skilled application the most remarkable results are occasionally observed The retrogression of the disease, or even its disappearance for two or three years, do not justify the use of the word "cure" Though we have seen the most striking results—results which five years ago could not have been believed possible—we have never seen a patient "cured" by this treatment The best testimony to the truth of this view of X ray work is shown by the refusal or reluctance of the skilful radiologist to undertake treatment in any case in which surgical measures are possible This means that only the cases in which surgery can do nothing are undertaken by the radiologist, and yet it is in these very advanced and otherwise hopeless cases that results are obtained which show the efficacy of the method In certain cases radium has its uses, and very remarkable temporary results are obtained It is only, however in cases of rodent ulcer, and by no means always even in them, that permanent freedom from recurrence has been observed Of the lead treatment of Blair Bell we cannot speak with certainty We must remember that his only chance of success is with the case in which everyone else has failed, with this category of the outcast he has certainly done better than any man

CONCLUSION

The points upon which we should at this moment concentrate our attention in our fight against cancer are, therefore, two —

1 To make the very utmost of our present methods which are applicable to all cases of accessible growths

2 To undertake research so that we may discover the cause or causes of cancer, and so be enabled to do something for the prevention of the disease or for its cure by methods other than those of surgery

We do not make the most of our present methods, and we are not likely to make the most until the public is instructed in some of the matters essential for them to know if they are to seek help in that stage of the disease which is capable of cure There are many medical men who regard with dismay or disapproval the suggestion that the public should be educated in matters concerning cancer It is said we shall "frighten them to death" I prefer to think that we are frightening them to life The problem of cancer is so simple and straightforward that any intelligent person may understand it, and by understanding it, learn to dread not cancer but neglect of cancer

As for research it is, perhaps, hardly too much to say that the conquest of cancer is a question of mon y Research, ceaseless research by trained skilful workers, research of the widest kind into all aspects and relationships of the disease, will surely capture the most elusive secret of its causation

Dr W E Gye, whose authority is indisputable, has said that " during the past 25 years—that is to say, during the period of experimental research into this disease—there has been greater progress in the study of cancer than in the study of any other single serious malady that attacks human beings " We hope that research may discover the cause or causes of cancer, and enable us, perhaps, even to prevent it or to rescue its victims by some other method than that of operation. The enemy grows yearly in strength, and though we are defeating him in some of his strongholds he is gaining on us elsewhere The time has come for a great national uprising against him

An Address
ON
ABORTION.

Delivered at a Joint Meeting of the Section of Obstetrics of the Royal Society of Medicine and the Medico-Legal Society on Jan 21st

By JOHN S FAIRBAIRN, B M OXF,
F R C P LOND, F R C S ENG,
OBSTETRIC PHYSICIAN TO ST THOMAS'S HOSPITAL, LONDON

I WILL endeavour first to give an idea of the medical indications for the induction of abortion and then to state the problems involved in it

MEDICAL INDICATIONS

The reproductive function is one that, like severe physical exertion, tests all the bodily functions, and under it some women will break down, even if previously perfectly sound The chemical processes are liable to become disordered and poisonous bodies may be formed causing damage to the liver and kidneys, the organs especially concerned in the modification and excretion of waste products The proportion of women who show signs of such failure is small, a fraction of 1 per cent Should it (toxæmia of pregnancy) occur, however, and not yield to treatment, the risks to the mother are great; in the worst cases, happily rare, she may go into convulsions and coma (eclampsia) or suffer from dropsy or uncontrollable vomiting, but the commoner danger is that of chronic kidney disease (Bright's) These cases are easily picked out by analysis of the urine and other tests, and when they do not yield to treatment are universally accepted as justifying the termination of the pregnancy, the more so because in kidney disease death of the fœtus in the womb occurs in nearly half the cases

The cases in which pregnancy occurs in a woman with some chronic disease that may be aggravated by the pregnancy form another group, in which, however, the results to be obtained from terminating the pregnancy are less certain and more open to difference of opinion In some diseases, such as chronic kidney disease and diabetes, there will be general agreement that pregnancy should be ended, but in regard to tuberculosis, heart disease, grave malnutrition, nervous and mental states there is room for wide variation in practice The effect of the pregnancy is speculative, but many accept without question the ill-effect that they think may arise and end the pregnancy forthwith Others advocate induction of abortion only when there is definite evidence of the disease being aggravated In heart disease, for instance, my own experience is that if the woman does not improve by rest in bed and medical treatment neither will she improve by ending the pregnancy, and sometimes the operation acts as the finishing touch. The case of a woman who has suffered from insanity in a previous pregnancy is an especially difficult problem Should the next pregnancy be ended for fear of a return of the mental disorder that may or may not recur ? The usual rule is that if the second pregnancy has followed soon after the one in which the trouble arose it should be terminated, also in any case in which insanity has occurred in more than one previous pregnancy On the other hand, if there has been some complication not likely to recur, such as excessive bleeding or septic infection which was clearly the provoking cause of the mental disorder, it is usual to allow the pregnancy to continue and trust to general medical treatment There is, however, in all serious disease of the mother something to be said for relieving her of the physical and mental strain of bearing and rearing a child, even if statistics show little gain from it

Laymen will readily appreciate, however, the difficulty of the medical practitioner who is faced with the case of a woman suffering from a serious medical condition or who has had previous mental disorder and is pregnant The husband and relatives look on the pregnancy as an aggravating factor in her condition and press for its removal The doctor may know that its effect is of no moment, but he will never convince his patients, and the pressure on him becomes too strong to resist Or again he may recognise that a tuberculous pregnant woman will do best in a sanatorium, but he cannot find accommodation for her or she may refuse to leave home, and he adopts the easy alternative of putting an end to her pregnancy.

The commonest reason, in hospital at any rate, for resort to this operation are the cases in which abortion has already begun, either spontaneously or from some accidental cause, or provoked by the taking of drugs, and the woman is ill from the hæmorrhage or infection of the damaged pregnancy or portions of it left in the womb There are also less common cases in which the pregnancy is found to be diseased and incapable of further development and a possible source of danger to the mother, generally accompanied by bleeding or enormous excess of the waters In these cases the only room for differences of opinion would be as to when the evidence was sufficient to indicate that the pregnancy was too damaged to continue or that it formed a definite risk to the mother These points granted there would be general agreement as to the need for its termination The cases in which labour is brought on prematurely when the mother is too small to allow of the passage of a full-time child fall into a different category, because the operation is done with the object of saving and not destroying the life of the fœtus

THE PROBLEM STATED

The original principle that guided the profession was that the procuring of abortion was lawful only if the woman's life was in danger if the pregnancy continued, but that principle was rightly extended to include also serious or permanent damage to her health For example, it has always been recognised that the serious eye changes that may occur with the kidney lesions in pregnancy were in themselves a definite reason for bringing the pregnancy to an end Rapid amelioration of the sight resulted. If the pregnancy continued permanent impairment and sometimes total loss of vision resulted We have only to think what blindness of the mother means to her family to realise how clearly interference is justified

Before, however, damage to her health can be predicted the woman must be kept under observation and treatment for such time as would suffice to show that progressive deterioration of her health left no alternative to the induction of abortion The consequences to the patient can be estimated only by taking into account what has happened in her previous pregnancies—if she has had any—how she is affected by the pregnancy in question, how far the effects have yielded to or resisted treatment, and by experience in, and knowledge of, similar conditions in other patients. The decision must be made largely on probabilities and there is room for much difference of opinion Hence the need for consultation.

As will be seen from reports [1] of the discussion at the last annual meeting of the British Medical Association, the principle of danger to life and health of the mother has also been jettisoned, and many in the profession go so far as to act on the supposition that it is not unlawful to take into consideration other than purely medical factors and to allow social, economic, eugenic, and other reasons to weigh in justifying the induction of abortion Such, for instance, as that the patient refuses to leave home or to try the effect of some special line of treatment, a girl's own story that she has been drugged or raped (especially if by a black man), that one or other parent is an epileptic or of feeble mentality, and so on

The effect of the spread of these laxer views is cumulative and produces a vicious circle, for once the public learns that abortion can be procured "respectably" under the guise of medical indications, every woman fails to see why her medical attendant should hesitate in her case, which, she is convinced, must provide an adequate excuse

Causes of Lower Ethical Standard

There are many causes contributing to this lowering of the professional standard of responsibility towards the procuring of abortion Resort to operative procedures is much more common owing to their greater safety and ever-increasing possibilities of speedy relief, and all operations are undertaken with much less consideration than was formerly the case The attitude of the general public must affect the medical profession which is part of the public and serves it The ethical standard of the public, never a high one, became lower during the war, though never falling as low in this country as in some mid-European countries that were especially affected by economic stress—e g, Austria and Russia The birth control propaganda that has followed the war probably arises from the same causes and likewise tends to produce a slackening of moral standards on the destruction of a pregnancy The factor, however, to which I would ascribe the chief influence is that of changing social conditions and their effect on the women of the day Our womenkind have secured wider interests and much greater opportunities than were open to their Victorian predecessors and crave for much more than a family life For these gains they have paid in a greater tendency to nervous exhaustion They may have wider fields open to them than their grandmothers had and be better equipped to till them, but their capacity to endure strain has not increased proportionately, and so far as the reproduction of the species is concerned they are inferior They would die—or they would have us believe so—if they produced families half the size of their grandmothers, and they call for much more in the way of artificial aid in childbirth

To illustrate this aspect of the problem as it confronts the medical profession to-day let me draw an imaginary picture Imagine a wife of the highly-strung over-sensitive type with two or three children and full of anxieties regarding their education and upbringing She has been trained to a professional or commercial life and still adds to the family budget by her earnings Finding herself pregnant again she is in the depths of despair She has made very heavy weather of her previous pregnancies and labours, her husband dreads again living through the months of the trials he has experienced before, and the two appeal to their family doctor to find some excuse by which her pregnancy and the consequent depression and nervous strain that fall on the whole family may be got rid of An actual case of this kind was reported in the B M A discussion which I would like to consider in some detail as a sample It has a topical touch about it, too, for it concerns a learned counsel and his wife—the latter of "a sensitive artistic temperament" A third pregnancy had followed after rather a short interval and Mr and Mrs K C had decided that her health might be affected, and the following casuistic argument is found seriously set out in print "Both she and her husband took the view that, the prospective baby being theirs, it was their own affair whether they allowed their work to be completed or not." If the baby had not been "prospective"—as would eventually have been the case had the processes of nature not been interfered with—would these two worthies have taken the view that it was still their own affair whether they allowed its natural development to continue or not? After consultation with a second obstetrician abortion was induced because "rapidly recurring pregnancies often affected the mother's health very unfavourably" The sequel, however, best shows up the illogical character of the whole proceeding Within six months she was pregnant again and returned to her doctor for relief, but the pernicious effect of rapidly recurring pregnancies apparently no longer sufficed However, though "flatly refused" by the original consultants, the legal couple proceeded to a medical colleague "whom they found more pliable." As a speaker in the B M A discussion remarked, "A patient's own or her husband's reasons for getting rid of an ovum should never be accepted, as there will generally be some selfish or sinister reason undisclosed" In this case the obstetricians fell easy victims to the specious argument of the learned counsel and no attempt was made either to test by observation what basis there was for his fears for his wife's health or to attempt any other form of treatment than the one desired I would like to put two questions about this case Had the lady and her husband come to a hospital, would the same treatment have been adopted? Had she been unmarried and unwilling to go through her pregnancy because she was apprehensive of its causing irreparable damage to her social health and position, would the treatment have been the same?

A Criterion Proposed

It is the frequency of cases of this kind that has served to weaken the former reluctance of the profession to resort to the procuring of abortion save for grave danger to the mother Such cases have enough in common with those fashionable explanations for aberrations of conduct—loss of memory, temporary irresponsibility, kleptomania, impulsive action, and others of the like, as announced in the press or pleaded in court, that they should arouse some fellow feeling for their medical brethren in the breasts of the legal profession The most useful result that might come from this combined discussion would be the formulation of some guiding principles that might help the medical profession to steer a safe middle course between allowing their patients to suffer serious injury to their health and overstepping the Common Law of the Realm

For my own part I would advocate that none other than purely medical considerations be allowed to weigh, and here I at once cross swords with my colleague who opened the *B M A* discussion with the following hopelessly inverted *statement* of the position I am sure this meeting will not be bluffed into studying the problem upside down as he tried to present it He says: "*It* is an ethical question of great interest to what *extent* we, as doctors, have the right to insist that a woman shall pass through an ordeal which she is unwilling to face, even if we do not think that she will sustain any permanent injury from so doing" The "right to insist" forsooth—it is not the right *to insist*; it is, have we the right to interfere with a *normal* pregnancy?

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[1] The Lancet, 1926, ii, 378, Brit Med Jour, 1926, ii, 237

Once other than purely medical factors are allowed to count no line can be drawn between criminal and therapeutic abortion As a profession we are not trained in sifting evidence, nor can we question our patient's own story as to how she came by her pregnancy In the next place, granting that anxiety and mental distress over an undesired pregnancy may cause disability and "nervous breakdown," can any line be laid down for these difficult and border-line cases? As one of those taking part in the B M A discussion said in regard to the psychological problems · "Surely nothing could be worse than the mental torture of illegitimate or illicit pregnancy?" Are we, then, justified in terminating these? If mental distress over the occurrence of a pregnancy is admitted as an indication for abortion, how are limits to be set to the operation? And surely the single girl should have the preference over the married woman with children, although it is the former cases that most often lead to hesitation on the part of the medical attendant for the reason that they are more liable to lead to suspicion as to motive

I would suggest to my obstetric colleagues that we think this matter out in terms of hospital rather than of private practice, for the cases of the kind now under consideration are relatively very rare in hospital The reasons for the difference between private and hospital practice are not far to seek The private practitioner is in much closer personal relationship with his patients, by whom he is retained as adviser, and they, in paying the piper, demand some say in calling the tune He is thus much more influenced by his patients and his patients' relatives, and his judgment is diverted in the direction of their wishes, and he is on the whole more affected by the attitude of the general public than the consultant in hospital practice

In hospital other than purely medical factors do not weigh and the patient is kept under observation and treatment, and only if her condition is too serious to brook delay, or if other measures of relief have clearly failed, is abortion resorted to Medical treatment has also greatly advanced in the last 25 years Hence the guiding principle I would urge for these nervous or psychopathic or other border-line cases is the hospital method of observation till the symptoms are proved to be genuine and unrelieved by treatment and only as the last resource should the pregnancy be destroyed The case already quoted affords a good example of failure to adapt hospital methods to private practice

There is another point calling for the opinion of our legal brethren that is well set out in Döderlein's "Handbuch" (vol iii, p 18) in which three paragraphs from the German Penal Code are quoted setting out the number of years' imprisonment for the various persons who may be concerned in the destruction of a pregnancy and without exception whatsoever for persons or reasons A later paragraph from the Code is then quoted in which even longer years of "strafing" in prison are laid down for one convicted of causing the death of a fellow creature from negligence, and the writer goes on to ask what is the doctor to do? He may be called on to answer in the courts a charge of abortion procured on purely medical grounds or a charge of causing the death of a mother by his neglect to terminate the pregnancy which led to her decease. I would like to know how this dilemma, as made in Germany, might hold good in this country

ETHICS OF ABORTION.

It is obvious why all civilised nations protect themselves against abortion-mongering, for it is but infanticide anticipated by a few months The destruction of a pregnancy—at whatever stage it is done—is the destruction of life and the killing of a potential citizen, though it is too much to expect the populace to think that the non-sentient embryo is of much account Wherever and whenever there is little regard for human life the destruction of a pregnancy will be of no moment. The detection and legal proof of abortion-mongering is always a difficult matter and the vast majority of cases go undiscovered The degree to which the practice exists in any community will vary chiefly with the civilisation and moral standard of its people as a whole and on their respect for the laws under which they live, so that in some nations the laws against abortion-mongering may be so far disregarded as to be in practice non-existent. So far as I know the Soviet Republic of Russia is the only State in which abortion is actually legalised [2] If the lax views of many of the profession become general the Bolshevist system of unrestricted abortion-mongering will become a vested interest of those on the Medical Register, who will become merely the instruments of those patients who hire them for the purpose

To avoid this degradation the following guiding rules are brought forward as a basis for discussion.

1 Medical indications alone should be considered.
2 Medical indications should be defined as those clearly involving danger to the life of health of the mother or damage to the pregnancy sufficient to interfere with its future development, and the onus of proof should rest on the practitioners concerned.
3 In doubtful or border-line cases observation of the patient away from home and failure of other methods of treatment should have proved that abortion is the only resource.

ETHICAL, LEGAL, AND MEDICAL ASPECTS OF ABORTION *

BY LORD RIDDELL

As an observer I have noticed the simultaneous development of two conflicting lines of thought and practice amongst obstetricians. On the one hand an increased regard for the safety of the child as compared with that of the mother, and on the other an increased tendency in some quarters to procure abortions Obstetrics being the most important and widespread branch of medicine, affecting as it does every member of the community, the opinions and practices of high priests who set the standards and control the education of students and midwives are subjects of national importance. In my capacity of an observer, perhaps I may be permitted to state what I regard as the causes of these two trends of obstetric opinion and practice.

TWO TRENDS OF OPINION.

The increased concern for the safety of the child, as compared with that of the mother, seems to be due to three reasons First, the improvement in the art of midwifery, which has led the practitioner in abnormal cases to adopt various gadgets (I use the word in no invidious sense) with the object of producing a live child The development of most arts is characterised by increased finesse. Midwifery is no exception Second, the natural revolt of doctors, practising in a humanitarian age, against the destruction of fœtal life, particularly by barbarous methods such as craniotomy; and third, the direct and indirect propaganda of the Roman Catholic Church which teaches that abortion is not permissible and that the fœtus must not intentionally be destroyed to save the mother's life or to protect her health.

The increased tendency to procure abortions seems to be due, first, to a growing desire on the part of medical men to please their patients—the pontifical doctor is becoming a thing of the past; second, to the decrease of religious inhibitions; and third, to the safety and simplicity of modern methods

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[2] Those interested in the conditions in Russia may be referred to the Medical Review of Soviet Russia (Brit Med. Jour, 1926, ii 802) by Dr H Gantt, American Relief Administration

* This paper followed Dr Fairbairn's at the meeting on Jan 21st.

These two sets of ideas act and react on each other and produce what may be termed “the modern midwifery atmosphere” When the first set is uppermost it may lead to undue suffering and risk for the mother When the second prevails it may cause the practitioner to destroy fœtal life unnecessarily and also to commit illegal acts

Before discussing definite problems that have to be faced in practice, it is necessary to consider the legal position, often misunderstood

THE LAW OF ABORTION

The law regarding abortion is comprised in the “Offences against the Person Act, 1861,” which provides that whosoever with intent to procure the miscarriage of any woman shall unlawfully administer to her any poison or other noxious thing or shall unlawfully use any instrument or other means whatsoever with the like intent shall be guilty of felony “Miscarriage” is a comprehensive term which includes both abortion and premature birth in the sense in which these words are understood by the medical profession, abortion being the expulsion of the fœtus during the first 28 weeks and premature birth expulsion after that period Miscarriage also comprises the destruction of the child during labour The term “unlawfully” is not defined, but obviously denotes a wrongful act, done intentionally without just cause or excuse. An adequate medical or surgical reason is the only just cause or excuse recognised by law for procuring a miscarriage The legal rule may be stated thus —

> It is contrary to law to procure, or attempt to procure, a miscarriage except with the object of saving the mother's life or avoiding serious injury to her health The essence of the offence is a guilty intent An honest effort to save the life or health of the mother is not illegal, although the practitioner may commit an error of judgment in performing an operation subsequently regarded by other practitioners as unnecessary He will not be liable to conviction if he honestly believes that what he does is required to save the mother's life or health If the mother dies in consequence of an illegal abortion, the person performing it may be liable for murder or manslaughter, but these offences cannot be committed in respect of a child in its mother's womb, as the child is not in *rerum natura* If, however, the child is born alive and subsequently dies, owing to injuries received *en ventre sa mere*, the offender may be convicted of murder or manslaughter (See cases quoted in “Russell on Crimes” Eighth edition)

Taylor's “Medical Jurisprudence” (seventh edition) states that in law “there is no such thing as justifiable abortion,” and that “the only reasons that can be thought of by an honourable man as justifying the induction of labour are · (1) to save the life of the mother, (2) to save the life of the child” This statement is open to serious criticism. Obviously the authors have overlooked or misinterpreted the word “unlawfully” in the Act of 1861. Furthermore, there is no doubt that a miscarriage may be lawfully procured not only to save the mother's life, but to avoid serious injury to her health The law is more accurately set forth in “Russell on Crimes,” which describes as lawful “acts done in the course of proper treatment and in the interest of the life or health of the mother” As to Taylor's reference to the life of the child, the statute deals only with measures to destroy the fœtus, and has no application to bona fide attempts to produce a live child or to preserve its health Furthermore, the Act does not relate to the removal of a dead fœtus

THE WELFARE OF THE PATIENT.

So far as I am aware, there are no legal decisions as to the pathological conditions justifying abortion This is not surprising I know of no case in which a medical man has been prosecuted for an error of judgment in procuring a miscarriage “Midwifery by Ten Teachers”—one of the latest text-books—says that “operations of this kind are confined to cases in which the life of the mother will be endangered or her health permanently damaged by the continuation of the pregnancy” But with all due respect I think the word “permanently” inaccurate. Induction is not only justifiable, but a duty, when the prognosis indicates grave danger to the mother's health, whether the results are likely to be permanent or not. The danger must, however, be serious Induction is not justified for the purpose of avoiding minor risks of pregnancy, such as the use of forceps or perineal tears A woman who becomes pregnant must be prepared to undergo the ordinary discomforts of pregnancy and to take the ordinary risks Therefore the practitioner must not be influenced by the adjurations of the patient or her relations to relieve her of these Nor must he be influenced by economic considerations or by his sympathy for a woman who finds herself in a distressing situation, involving perhaps social ruin. In short the medical man must confine himself to the medical and surgical aspects of the case The statement in “Midwifery” that “it is the practitioner's duty to do all in his power to counteract the modern tendency to curtail families for the sake of the State as well as for the sake of the woman's bodily and mental health” is also open to question. I respectfully suggest that the doctor's sole duty is to consider the welfare of his patient In deciding on the necessity for abortion he should not be influenced by a predilection “in the interests of the State” either for large or small families

CONDITIONS WHICH JUSTIFY ABORTION

The standard text-books on obstetrics indicate certain conditions that may admittedly justify abortion Some are caused by diseases peculiar to pregnancy and others by diseases apart from pregnancy but aggravated by it Even a layman can understand that each case must be judged on its merits The practitioner must exercise his discretion, remembering that in the absence of just cause the procuring of a miscarriage is a criminal offence But he must remember also that the mother's life must never be sacrificed to her unborn child, even if she is suffering from an incurable disease, such as T B in an advanced stage On the other hand, the possibility of diseased offspring is no indication for abortion The practitioner is not entitled to engage in eugenic excursions of this sort, and it must be remembered that unhealthy parents occasionally have healthy children It should also be remembered that a woman is under no obligation to submit to Cæsarean section as an alternative to abortion Happily the necessity for these measures is steadily diminishing owing to improved methods in the treatment of disease and to improved obstetrics which lessen the strain on the mother during pregnancy and labour It is apparent that even the conditions described by the text-book writers must provide ample scope in many cases for the compliant practitioner and ample room for honest doubt on the part of the scrupulous one There are, however, cases of other classes that present even more difficult problems These are said to be increasing in number owing to the growing disinclination on the part of many women to submit to the normal discomforts of an unwelcome pregnancy

It may, however, be pointed out that this is no new phenomenon Juvenal (circa 60–140) has some well-known and emphatic lines on the subject “These, however (the poorer-class women), do undergo the risk of childbirth and bear all the fatigues of a nurse, but rarely does a woman in labour lie on a gilded bed, so powerful are the arts and drugs employed by such a one”

And in 1868, an American, Dr Storer, wrote a book “Criminal Abortion” in which he deplored “its awful extent” amongst American women who did not wish to be inconvenienced by repeated pregnancies We are too prone to pay undue attention to the abnormal The truth is that the mass of women are taking a more intelligent interest in the production of healthy children than at any previous period At a large child-welfare clinic with which I am connected, the mothers—all wives of working men—write yearly essays on the management of pregnancy that would do credit to doctors or midwives But let us take a few typical cases of a kind calculated to cause the conscientious practitioner serious anxiety and to afford the compliant ample scope

1 Case of Mrs Smith, aged 26 Fashionable wife of a well-to-do man. Married two years, two children Four months after birth of second child again becomes pregnant Much distressed Nervous, irritable, and out of control Says she vomits all she takes, and is sinking from constant sickness Darkly hints at suicide Begs medical adviser to terminate pregnancy

2 Case of Mrs Brown, aged 40 Wife of working man earning forty shillings per week Married 16 years Lives in two rooms Eight children Again pregnant A delicate highly strung woman, much run down by repeated pregnancies and hard work Loses appetite Loses weight Sleeps badly Suffers from severe vomiting Is in a most depressed condition. Prognosis doubtful Implores doctor to terminate pregnancy

3 Case of Miss Jones, aged 20 A cultured girl who has got into trouble Attempts suicide and presents unmistakable symptoms of mental collapse

4 Case of Miss Robinson, aged 30 A cultured woman who becomes pregnant owing to assault by a tramp Mental condition serious Threatens suicide unless pregnancy terminated

THE PRACTITIONER'S POSITION

What should the practitioner do under such circumstances? We know, of course, that he should invariably get the benefit of a second opinion, and we know that in modern practice it is usual to secure such an opinion from a specialist in the disease affecting the pregnancy It is for the specialist to say whether the woman can safely be allowed to go to full time Consequently in the four typical cases quoted, it would seem to be the duty of the doctor to call in a general physician or a mental specialist as may be most appropriate If he advises in writing that the continuation of the pregnancy is likely to kill the woman, ruin her health, or drive her into a mental home, then in my opinion, *quantum valeat,* as the lawyers say, the procuring of a miscarriage is not only justifiable but a duty Cases in which the patient misrepresents or exaggerates her condition with the object of persuading the doctor to terminate the pregnancy are not uncommon Therefore extreme care is necessary when making the diagnosis

It would be futile to disregard the fact that some practitioners are ready to seize on any medical or surgical reason to justify an abortion when desired by the patient to avoid an unwanted child It is useless to discuss such conduct The offence cannot readily be detected in the case of a married woman attended by two medical men Nevertheless it is a risky game When required to deal with a pregnant unmarried woman, the practitioner is faced with problems of exceptional difficulty and danger If he procures an abortion his motives are open to question, and if he fails to do what is necessary to preserve the life or health of his patient he is liable to grave moral condemnation and may possibly incur serious legal consequences When faced with such a problem, the practitioner should always remember that secrecy is the badge of fraud If he acts openly, and if he is supported by another sound opinion, he has little to fear if his motives are right It is not a crime for an unmarried woman to become pregnant, and her medical adviser has no right to condemn her to death or to serious morbidity because she happens to be unmarried

THE ETHICAL ASPECT

As to the ethical side of medical abortion, every one must obey the law, but the practitioner is under no compulsion to do what the law permits He may say to the patient, "I am of opinion that an abortion is necessary and therefore legally justifiable but my conscience will not allow me to procure it If you insist, you must go elsewhere" But in giving effect to ethical convictions the practitioner must not offer up a vicarious sacrifice To speak more plainly, the patient must not be prejudiced by her medical adviser's conscientious scruples Both law and ethics demand that her condition should be explained and that she should know that she is being attended by a doctor who has convictions which she may or may not share

In considering the ethical aspect of the question a brief history of the subject is necessary

GREEKS AND ROMANS

Although prior to the Christian era the practice of abortion was common among the Greeks and Romans, little is known as to their legal attitude in regard to it especially in the case of the Greeks. The Oath of Hippocrates (460–370 B C) forbids it, but the prohibition obviously relates to what we should call criminal abortion and not to abortion for medical purposes Also it is doubtful whether the Oath as we know it was prepared by Hippocrates. Additions may have been made by his disciples at a later date It is curious that the Oath is the only evidence that abortion was regarded with disfavour by the Greeks Certain Greek philosophers, notably Plato (427–347 B C) and Aristotle (384–322 B C) expressed themselves decidedly in favour of the practice Plato (Republic V, 461 C) was ready to allow those who had passed the limits of age prescribed for procreative purposes (20–40 years for the woman, 25–55 for the man) to practise promiscuous intercourse but only on condition that such couples should have no children "We accompany this permission with strict orders to prevent any embryo which may come into being from seeing the light" (Trans Jowett) Aristotle's opinion (Politics VII, 16) may be compared to that of modern advocates of birth control "When couples have children in excess and there is an aversion to exposure of offspring" (to destroy them), "let abortion be procured before life and sense have begun" (Trans. Jowett) Indeed, as Lecky says in his "European Morals," "the practice of abortion was one to which few persons in antiquity attached any deep feeling of condemnation" When specific acts of abortion were condemned, this was not on moral grounds, but because the rights of husbands had been infringed, or the devolution of property interfered with Cicero (106–43 B C) relates a case in which expectant heirs bribed a pregnant woman to procure an abortion and thus defeat the prior rights of her coming child She was sentenced to death (Pro. Cluentio XI) Havelock Ellis says ("Studies in the Psychology of Sex") that in accordance with the patriarchal basis of early Roman institutions it was the father and not the mother who had the right to decide on abortion, but I have not been able to verify this

The comparative indifference with which abortion was regarded by the Greeks and Romans is explained by the view generally held that the fœtus was not a human being or animal but *pars viscerum matris*. There is no trace of any Roman penal law against the practice until the time of Ulpian in the early part of the third century, when abortion was made a crime, but the Stoic Musonius, writing in the first century, remarked that "the legislators have forbidden women to procure abortion and inflict penalties upon offenders" Galen, writing in the second century, says much the same The Justinian Codex promulgated in the sixth century confirmed the laws of the Ulpian period but discriminated between abortion before and after 40 days in the case of a male and 80 in that of a female, thus following the Aristotelian idea, of which more hereafter How the practitioners divined the sex when considering whether to operate is not revealed Hippocrates had committed himself to the statement that boys quicken a month earlier than girls ("On the Nature of the Child"). The Roman Codex did not recognise the unborn child as a human being, and consequently abortion was not equivalent to homicide These laws may have been due to the enormous growth of the practice under the Empire, as morals became increasingly corrupt, or to the spread of the Christian religion. The Church early in its history set its face against abortion This was due partly to a revolt against the doctrines of the Aristotelian school who taught that there was. (1) a vegetable soul which came into being at conception; (2) an animal soul which developed a few days later; and (3) a rational soul that came into being after 40 days in the case of a male and 80 of a female The rational soul presented no difficulty. To the Church the rational and spiritual were a unity. Accordingly once rationality had attached to the corporeal child in the womb its destruction was logically murder The vegetable and animal stages, the *homo rationalis futurus* (the rational man to be) presented subtle intellectual problems.

The Mosaic Law

Abortion was not expressly prohibited by the Mosaic laws except that Exodus XXI., v. 22, inflicts penalties for injuring a pregnant woman in a brawl The New Testament is silent Therefore the question was whether abortion was contrary to the Sixth Commandment "Thou shalt not kill" The Christian Fathers faced the situation with characteristic resolution and more than characteristic precision Tertullian (155–222) voiced their views when he said, "Murder being once for all forbidden, we may not destroy even the fœtus in the womb To hinder a birth is merely a speedier homicide, nor does it matter whether you take away a life that is born or destroy one that is coming to birth" Gregory of Nyssa (fourth century) declared that "one identical life principle exists from conception to death" Similar pronouncements have been made from time to time by various ecclesiastical authorities These declarations involved strange results and made abortion a deadly sin The fœtus, being a human creature and therefore the inheritor of original sin, was certain of eternal damnation if it perished without baptism For this reason the Church still teaches that the life of the child must not be sacrificed for the mother's benefit Either she has been baptised or she has neglected her duty, whereas abortion would deprive the infant of baptismal rights In the Middle Ages little was heard of abortion, no doubt due to the universal authority of the Church In England in Anglo-Saxon times it seems to have been regarded as an ecclesiastical offence only (Stephen's "History of Criminal Law," Vol. I, p 54) Later it became a crime, see legal works of Fleta (circa 1290), Bracton (d 1268), and Coke (1552–1634) It should be noted that until the Act of 1861 already quoted, our law drew a distinction between a woman quick with child and one not quick. (Quickening is supposed to occur about the eighteenth week) This difference was embodied in the first statutes prohibiting abortion, 43 Geo III, ch 58 and 9 Geo IV, ch 31 If the offence was committed before the woman was quick, the penalty was imprisonment, transportation, or whipping If later, death From all this it appears that abortion, although tolerated before the Christian era, has long been regarded as an anti-social act, contrary to the welfare of the individual and the State This view is not based upon ecclesiastical doctrines as to viability that may or may not be justified by the facts or by the Scriptures When considering the ethics of medical abortion, it is important to note the distinction between an ethical rule made by mankind for their own protection and a natural law such as the Sixth Commandment.

The Biological View

The discussion is, however, complicated by the views of those who hold, for so-called biological reasons, that the life of the embryo is sacred even in its earliest stages The exponents of these opinions disclaim the influence of ecclesiastical dogma, but in effect agree with the Roman Catholic Church that one identical life principle exists from conception to death This doctrine involves subtle questions, which may be argued indefinitely both as to time and conclusions When does life begin? When does the child establish a separate entity apart from its mother? The Greeks and Romans revelled in such speculations Plutarch's "Morals" contains a quaint epitome of the opinions of several eminent persons on this abstruse subject, enlivened by the analogy of the unplucked apple Is it part of the tree or a separate entity? Xenophon and the Stoics regarded the fœtus as the fruit of the womb, the soul mind or intelligent principle being acquired at birth Aristotle's views have been described already It must be confessed that modern discoveries have not helped us to solve these metaphysical problems Logically the life of the microscopic embryo with its potentialities may be as sacred as that of the fully grown man, but human affairs are not governed by logic. Therefore we find that for nearly 3000 years the laity have not regarded the fœtus as a human being. This may not be logic but it is common sense Abortion is anti-social and illegal unless performed for an adequate medical reason But when such reason exists there is no ethical objection The doctrine that the mother is to be sacrificed or risked for the benefit of the unborn child is a resuscitated relic of the Dark Ages and biologically unsound On strictly ethical grounds, saving the mother's life or health is more laudable than the observance of theoretical ideas regarding the viability and rights of the fœtus As Dr Ballantyne says when summarising ideas, of which he disapproved, by the way ("Ante-Natal Pathology," p 459), "The mother's life has a value because she is what she is, while the fœtus only has a possible value on account of what it may become" Perhaps I may be permitted to add that consciousness may well be the test What evidence is there that the fœtus possesses this quality? The whole tendency of modern life is to abandon forms however venerable, and to concentrate on realities The ethical propriety of lawful abortion must be considered from that aspect As Aristotle says somewhere, scientific exactitude is impossible in reasoning upon particular ethical cases The circumstances of each case must be regarded Health is the purpose of medicine Therefore the doctor is justified, providing that he acts within the law, in doing what will be most conducive to the object of his calling

Essentially a Woman's Question

Hitherto abortion has been a question entirely in the hands of men—Christian ecclesiastics, lawyers, doctors, and politicians Yet it is mainly a woman's question In Germany it has been actively taken up by women (See Havelock Ellis's "Studies in the Psychology of Sex") German writers insist that the fœtus is not yet an independent human being and that every woman, by virtue of the right over her own body, is entitled to decide whether it shall become one I hope we shall all regard this as an anti-social proposition Nevertheless, it is certain that the practice of contraception would receive an enormous stimulus if the public thought that the lives and health of pregnant women were to be risked against their will and without their knowledge by reason of ethical objections to perform a legal operation

There are two further points that demand attention. The destruction of a full-grown child is a revolting affair, whereas the abortion of an early fœtus differs but little from the removal of a uterine tumour Even the Roman Catholic Church, in awarding its punishments, discriminates between early and late abortions See, for instance, Decretal of Pope Gregory IX (1244) defining abortion as homicide if the child had quickened, otherwise not Consequently it is the duty of the practitioner to perform the operation early if reasonably satisfied that it will be required sooner or later

Conclusion

Finally, how often should he procure abortion on the same woman? And how often should he perform a Cæsarean section? No doubt each case must be judged on its merits But this at least may be said. Procuring abortion involves serious and exceptional responsibilities which a patient is not entitled to thrust on her medical adviser Therefore she should be warned against future pregnancies and, in appropriate cases, sterilisation should be recommended Cæsarean section differs, of course, from abortion inasmuch as there is no express statutory prohibition, but if a Cæsarean section were performed unnecessarily and the patient died as a result the practitioner would be liable to conviction for manslaughter

Nature has ordained that children shall be produced in a certain fashion and abnormal methods are not justifiable to gratify whim or caprice Nor, it is submitted should the practitioner lend himself to a series of such operations If a woman cannot bear children in the usual way, she should be warned against further pregnancies that must result in abortion or in an operation attended by serious risk

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NEW METHODS AND PRINCIPLES IN THE TREATMENT OF VARICOSE VEINS

BY A. L VISCHER, M D BÂLE, M R C S ENG

THE satisfactory results obtained by the injection of substances causing sclerosis in the treatment of varicose veins, which have been reported from many places, have rightly aroused interest.

In the present paper an endeavour will be made, in the light of personal experience to set forth some of the remedies which have been recommended, with their effects, and to add a few brief remarks about some new results of scientific research work, especially regarding the state of the circulation in the lower limbs, which are important for an appreciation of the new methods

All methods whose object is to destroy the varicose veins by injecting substances causing sclerosis date back to the Berne surgeon E Tavel, who, in 1904, recommended the injection of a 5 per cent solution of carbolic acid into the varicose veins This method however, was not adopted During the war German, French, and Austrian workers took up this treatment, using different substances. In most countries the treatment met with almost general disapproval because of the fear of embolism. The various scientists, however, went on with their experiments which had already given good results, and they now look back upon excellent results extending over several years On the basis of this experience the method can now be recommended without hesitation to the medical world

Various remedies are employed in this treatment J A Sicard and L Gaugier, Paris, use sodium salicylate in a 20 per cent., a 30 per cent, and a 40 per cent solution Linser in Germany uses a 20 per cent solution of sodium chloride, and lately G Nobl in Vienna has recommended grape-sugar in a 50 per cent solution having previously used a 1 per cent solution of sublimate in numerous cases

Apart from the authors mentioned many others have published their results; the above-named scientists deserve, however most consideration, as their experience extends over thousands of cases

Principles underlying the Treatment.

The action and principle are the same whichever substance is used When one of these remedies is injected into a varicose vein damage to the wall of the vein takes place A thrombus is formed on the damaged wall of the vein which is quickly organised An artificial thrombophlebitis is the result The artificially formed thrombi are remarkable for their great tenacity, for they do not become dislodged and no fragments are detached from them. The artificial abrasion of the intima and the resulting formation of thrombi can only take place in varicose veins The wall of a normal vein shows, indeed a great power of resistance against any damage by corrosive substances Salvarsan and sodium salicylate solutions of high concentration have been injected into the arm veins without the formation of any thrombi being observed The inner wall of the varicose veins as has been proved by numerous pathological-histological investigations, is almost always affected The wall is sometimes moderately hypertrophied, but generally it is atrophied, and in extreme cases the three coats have degenerated into a thin fibrous membrane

The extent of the artificial damage to the wall of the veins after an injection measures from 3–10 cm and depends on the strength of the injected substance and on the degree of dilution with blood in the injected vein. In rare cases the varicose veins of the whole leg are acted upon.

Unwarranted Fear of Embolism.

The suspicion attaching to this method and the unwillingness of many doctors to take it up originate in the fear of embolism The formation of a thrombus suggests at once the possibility of embolism All the above-named clinicians report, however, that they have never observed embolism occurring after the injection of substances causing sclerosis P. D. Linser cites more than 6000 cases in support of this assertion, Sicard and Gaugier several " thousand cases, and G. Nobl 2960 cases extending over eight years

The absence of any danger of the formation of emboli is not only empirically proved but can also be established by certain anatomical, histological, and physiological findings The damage to the inner wall of the vein is severe, and in consequence the adhesion of the thrombus formed is very close and firm The thrombus adheres, not only in one place, but in parts to a large proportion of the wall. The artificially formed thrombus has a tendency quickly to organise; in the wall of the vein a productive inflammation takes place, and strands of young vessels and connective tissue penetrate into the thrombus Later a transformation of the connective tissues occurs, the varicose veins which have been subjected to treatment close up, and ultimately become thick fibrous cords The adhesion of the artificial thrombus to its place of origin is further explained by the course and structure of the very sinuous, dilated, alternately expanded and constricted blood channel

The Circulation in Varicose Veins

To understand this new method a knowledge of the conditions of the circulation in the varicose veins is extremely important Trendelenburg s well-known experiment has taught us long ago that in varicose veins the valves no longer close the lumen The insufficiency of the valves is not the only sign of defects in the circulation. A. Jentzer's radiographic investigations with injections of a solution of bromide of strontium show that in varicose veins the blood does not flow towards the heart but towards the periphery G Magnus has studied the conditions of the circulation in varicose veins by introducing a hæmodrometer These experiments have proved that in the recumbent position of the patient the blood in the varicose saphenous vein flows towards the heart or, in many cases, is practically stationary. When in upright position, or even only on bending the leg 45 degrees the blood flows backwards towards the periphery, and the rapidity of the centrifugal stream is distinctly greater than that of the normal centripetal stream in the veins

This fact explains why, in people suffering from varicose veins, often complicated by thrombotic processes, pulmonary emboli are never observed when the patients move about or when they are doing heavy manual work, but are formed only when the body is in the horizontal position—e g, during intercurrent illnesses In fact, when a thrombus in a varicose vein becomes dislodged, it moves as a rule centrifugally into the fine branches of the saphenous vein and causes embolism of these vessels Magnus believes that the ulcers which suddenly appear and rapidly grow may arise in this way

It is an advantage in this method for the patient not to lie in bed after the injection, but to resume his ordinary employment

Technique

When making the injection care must be taken that the varicose veins are as free as possible from blood To give any results the solutions must act on the intima in high concentration, that is to say, practically undiluted It is therefore convenient to stretch the veins or to raise the lower limb during the injection

An objection to the treatment by injection must be mentioned; the solutions cause necrosis of all the tissues if they are not injected into the lumen of the vein The injections must be definitely intravenous, never perivenous or paravenous This demands a very exact and precise technique

Here is a brief account of the strength and doses of the solutions If a *1–2 per cent solution of perchloride of mercury* is used, an injection of from 1–3 c cm gives the desired result of irritation of the inner wall If *20 per cent, 30 per cent and 40 per cent solutions of salicylate of soda* are used, at one sitting 6 c cm of the 20 per cent solution, 4 c cm of the 30 per cent solution, or 2 c cm of the 40 per cent solution can be injected The *sodium chloride* is used in a 20 per cent solution and 5 c cm of this solution are injected In the case of *glucose*, Nobl recommends the injection of a 66 per cent solution, 5 c cm of this solution are sufficient to produce a satisfactory local effect The absolutely innocuous nature of the glucose makes it possible to treat several portions of the vein at one sitting

The use of fine needles with short bevelled points gives the best results, and it is advisable to use a new needle for each injection Before the injection the skin over the varicose vein is disinfected with tincture of iodine or alcohol It is of the greatest importance that the injection be strictly intravenous By drawing up blood into the syringe one has a test which can always be applied before or during the injection After the injection light pressure with a pad of cotton-wool is applied for two minutes to the skin where it has been pierced by the needle

General Remarks

Though this new treatment of varicose veins has given excellent results and is without danger—provided, of course, that it is carried out correctly—it must nevertheless be pointed out that a relapse is by no means always out of the question Either the artificially thrombosed veins again become permeable, or other veins degenerate into varicose ones This is, however, much more frequently observed after surgical treatment of varicose veins One need not hesitate to cure these recurrences by the injection method In such cases the patients will object less to a repetition of the injection than to a second surgical operation After a successful treatment by injection it is also important to improve the circulation in the lower limbs by systematic muscular exercise, and to avoid what is harmful, above all long-continued standing

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INJECTION TREATMENT OF LOCALISED TUBERCULOUS LESIONS.

WITH SPECIAL REFERENCE TO CALOT'S PREPARATIONS

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THERE is nothing new in the treatment of tuberculous lesions by injections, it has been strenuously advocated for many years by leading authorities on tuberculosis But in view of the many patients admitted to hospital who have already been operated on and who have profuse discharging sinuses, even amyloid disease, one feels justified in again calling attention to a line of treatment which to a large extent saves the patient from the dangers of these serious complications In the vast majority of tuberculous lesions operation is a mistake, the extent of which is not always realised by the surgeon, for he does not always see the end-result of his well-intended incision, or excision, as the case may be There is no short road to cure in tuberculosis of bones and joints

The most common complications of tuberculous disease of bones and joints are abscess and sinus formation In notes collected of 110 cold abscesses the relative frequency recorded was psoas, 28, gluteal (6 from spine, 6 from hip), 12, knee, 11; lumbar (7 from spine, 2 from sacro-iliac joint), 9; hip, 10; forearm, 6, dorsum of hand, 5, leg, 5; ribs, 5, thigh, 4, sternum, 4, elbow, 3, ankle, 2; retropharyngeal, 2, upper arm, 2, scalp, 1, foot, 1.

Technique of Aspiration for Abscess

Aspiration of a palpable psoas abscess, pointing either above or below Poupart's ligament, is a perfectly safe procedure provided that the puncture with sharp trocar in cannula is made, not through the skin directly over the abscess but in an oblique direction, so that the cannula will pass through a fair thickness of healthy tissue before entering the actual abscess cavity It is well before the puncture is made to slide the skin adjacent to that overlying the abscess, so that when the instrument is withdrawn and the parts return to the normal position the track is obliterated Both lumbar and gluteal abscesses should be aspirated laterally and not medially, so that when the patient is in dorsal decubitus, gravity will not assist the fluid contents to find their way along the needle track and create a sinus A psoas abscess is aspirated above Poupart's ligament at a point half inch above and to the outer side of anterior superior iliac spine. Aspiration should not be attempted unless there is definite evidence of fluctuation on deep palpation It is advisable, especially when aspirating on the left side, that the colon should be emptied beforehand by enema An abscess below Poupart's ligament pointing to the inner side of the thigh requires a little more care, the puncture should be made to the outer side of the femoral vessels, and the cannula passed behind them into the abscess cavity to the inner side of the thigh An anæsthetic is safer in a case of this kind, and should also always be given before attempting the aspiration of a retropharyngeal abscess In this case the needle is entered at the level of the second cervical vertebra at the posterior border of the sternomastoid It is passed straight in behind the carotid sheath till it strikes the transverse process of the second vertebra, and then passed forward over the anterior surface of the transverse process

Results of Trypsin Injection

The results of trypsin injection, which was tried in a small number of cases were not satisfactory Two patients with psoas and two with hip abscess were treated by aspiration and injection of 1 c cm trypsin In each instance the focal reaction proved too great to be controlled In one case of psoas abscess the abscess recurred so acutely after the third injection that it had to be incised, in the other three patients the abscesses broke through the skin Five cases with sinuses were also treated by injection of trypsin into the tissues surrounding the sinuses In one case only did improvement occur; thus, a knee lesion with several discharging sinuses, was given 6 injections of 1 c cm trypsin, and healing occurred four months later In the other four cases the sinus was connected with elbow, inguinal glands, hip and tibia, respectively, in no instance was any improvement recorded, indeed, in all it could be said that progress was definitely retarded

Treatment of Cold Abscess

The routine treatment for cold abscess subsequently adopted was aspiration accompanied by injection of Calot's modifying fluid

This consists of olive oil 70, ether 30, creosote 5, guaiacol 1, iodoform 10 parts The best olive oil is shaken up with absolute alcohol, 1 part of alcohol to 100 of olive oil, to remove certain impurities from the oil This mixture is then left in a filter funnel for about 12 hours, the alcohol floats to the surface, carrying the impurities with it, and the pure oil can be run off below *The oil is then sterilised by* boiling for 15 minutes The creosote, guaiacol, and iodoform are triturated in a sterilised mortar with a sterile pestle, and added to the oil when it has cooled below 60° C The ether is added when the mixture is cold The result is a clear light-brown fluid which should be kept in the dark in a sterile Erlenmeyer flask of about 250 c cm capacity capped with rubber It is not advisable to give more than 10 c cm as a dose once weekly, this can be repeated indefinitely as long as the abscess requires aspirating Smaller doses are given to children according to age

This modifying fluid was used frequently in Robroyston, both following the aspiration of cold abscesses and in the treatment of white swellings of joints It was found to be of distinct use in both conditions and there is reason to believe from the results obtained that cold abscesses dry up more quickly when this modifying fluid is injected after each aspiration than when the aspiration only is done Ninety-seven cold abscesses (including 20 psoas, 11 lumbar and gluteal, 12 hip and 9 knee abscesses) were treated by aspiration and injection. Of these, 66 healed, 26 (including 1 psoas, 5 lumbar and gluteal, 1 hip and 2 knee abscesses) broke down with sinus formation, 1 was improving when the child was removed by the parents, 1 abscess recurred four months later, and three cases developed nephritis which, however, could not be definitely attributed to the injections

Other cold abscesses, 18 in number (including 2 psoas, 3 lumbar and gluteal, and 2 knee abscesses) were treated by aspiration without injection Of these, 12 (including all the psoas, lumbar, gluteal and knee abscesses) broke down with sinus formation and 6 healed Treatment by aspiration is *comparatively* futile in the case of disease of elbow, ankle, and glands because of the rapid involvement of the skin Thus, of 4 abscesses at elbow-joint treated, 2 healed and 2 broke down, of 3 at ankle-joint, all broke down, of 15 gland abscesses treated, 13 broke down and 2 healed

Treatment of Sinuses

Sinus formation in disease of the spine, hip, and knee is a disaster of high import in the order given Nevertheless, although a serious problem it is not one incapable of *solution* Sinuses can be healed The material used almost exclusively was Calot's No 2 paste

It is composed of phenol camphor, 3 g, naphthol camphor, 3 g, guaiacol, 8 g, iodoform, 10 g, lanoline, 150 g, spermaceti, 100 g The lanoline and spermaceti are mixed and heated to boiling-point in any kind of vessel, preferably one of porcelain or earthenware The mixture is stirred continuously to prevent boiling over, and is then allowed to cool to 122° F, and the other ingredients which have been carefully triturated in a sterilised mortar are then added to it Phenol camphor is composed *of equal* parts of phenol and camphor, naphthol camphor of one part naphthol to two of camphor The paste, which must be kept from the light, is solid at ordinary temperatures and is of a fine yellow colour It is best kept sterile in sterilised glass jars with glass stoppers It liquefies at about 105°, and is solid at body temperature For use the jar is placed in hot water about 140° until the paste liquefies This generally takes about 20 minutes The ordinary all-glass 10 c cm urethral syringe is the most convenient to use for injecting sinuses One should be just as careful about asepsis as for an aspiration The jar should always be shaken and the liquid paste injected at a temperature of about 103°

If there are several sinuses these very often communicate, and when one sinus is being injected the paste appears at the orifices of others Wherever it appears it should be frozen hard with the ethyl chloride spray and a dressing held over the plugged sinus, so as to enable all the interstices to be further filled The nozzle of the syringe should be kept within the orifice until the paste has solidified Solidification may be assisted by spraying ethyl chloride around the sinus opening The injections are repeated every fourth day on ten occasions and at the end of that time treatment is stopped for a month If then the sinus remains unhealed, another course of injections should be given It is not advisable to give more than 20 c cm as a dose and it is exceedingly rare to find a sinus suitable for treatment that will hold more than 10 c cm Both lanoline and spermaceti are organic substances easily absorbed in the sinus cavity, and are thus less likely to interfere with drainage than mineral substances like paraffin The other ingredients act in very much the same way *as they do in the case of the abscess wall* They provoke a localised hyperæmia and reaction in the sinus wall, with possibly a slight increase of discharge for a day or two following the injection, and in the end promote the cicatrisation of the tuberculous granulation tissue lining the sinus.

Contra-indications

Calot mentions albuminuria and septic infection causing pyrexia as contra-indications to this form *of treatment* Seventeen patients with sinus formation complicated with albuminura were treated, in most of them the albumin did not amount to more than a trace Only two of these sinuses healed, one of which was from disease of ilium and the other had followed a ruptured psoas abscess The latter case had no albumin after healing; in the other it continued None of the other 15 cases showed any improvement; in fact, several have since died of amyloid disease It was noticed that post-operative sinuses were considerably more difficult to heal than sinuses occurring in the natural course of the disease, 10 only healing out of 27 This was probably due to the greater amount of dense scar tissue *present* in the wall of the former type of sinus rendering purification, revascularisation, and healing more difficult No case was treated by this method in which the degree of sepsis was at all marked—i e, cases with discharge at all profuse or with evening temperature approaching 100° Of 80 other cases, in which the sinuses had arisen without operation, 58 healed entirely on treatment and 22 remained unhealed Of the cases which did not heal, one, a psoas sinus, developed acute nephritis during his second course of injections and he eventually died, another patient with an ankle sinus developed a severe septic reaction, amounting almost to erysipelas, around the sinus and treatment had to be stopped; two cases were taken home by parents before treatment could be completed, and four cases developed acute dermatitis around the sinus and the injections were stopped in consequence There is a small proportion of patients whose skin becomes severely irritated by the paste, probably owing to an idiosyncrasy to iodoform.

Of the total 124 cases, the culture of secondary infecting organisms was attempted in 61 The most common micro-organism was *Staphylococcus albus*, alone or in combination with streptococcus or with a Gram + diphtheroid bacillus This last was grown in seven instances Coliform organisms were grown from sinuses on six occasions, being *Bacillus coli communis* in three of these The presence of streptococci proved an insurmountable barrier to success in treatment in most cases *Staphylococcus aureus* was an equally difficult invader to deal with In no case in which a coliform bacillus was present was healing obtained The sinuses most easily healed were those found sterile on culture or infected merely with *Staphylococcus albus*, alone or in combination with the diphtheroid bacillus

Treatment of Ulcers.

Tuberculous ulcers can be very successfully treated by means of an ointment containing the same ingredients as Calot's paste in the same strength If the cetaceum is omitted and double the quantity of lanoline used a very good ointment is obtained, which seems to provide the necessary stimulus to healing in shallow ulcers which it would be impossible to inject with the paste.

Treatment of Tuberculous Joints

In "Indispensable Orthopædics" Calot warmly advocates injection of his No 1 fluid into joints affected with tuberculous arthritis with the idea of causing sclerosis Two c cm or more of the fluid are injected into the joint by means of a Record syringe once weekly for ten weeks through suitable skin punctures A rest of a month is then given followed by another course of injections if necessary A number of tuberculous knees were treated by this method, but in eight only was treatment carried out long enough to give one a fairly accurate idea of its value. In one adult an abscess and sinus followed the fifth injection The sinus was successfully treated by means of injections of paste and excision was performed later with good result In two other adult cases abscess formation occurred during treatment and this complication is still being treated in one; in the other there has been no sign clinically of active disease during the last four months and the patient is now ambulant Other two adult cases both with extremely painful knees ankylosed in extension benefited considerably on treatment, and one left hospital five months after its completion wearing a celluloid splint over a firmly ankylosed and painless knee. The other showed signs of fresh activity of disease after having been ambulant for three months Excision had to be performed in this case also The remaining three cases treated were children with pulpy synovial swelling of the knee-joint, in only one of which was there any erosion of cartilage demonstrated on X ray examination All three cases did extremely well They each had only one course of injections. In all three swelling of the joint was found to have considerably diminished in size about two months after treatment had stopped In the two cases in which the synovial membrane alone was diseased, movement which had only been possible through a few degrees gradually increased in range until six months after treatment had ceased flexion and extension was possible through 90° In the third case firm ankylosis occurred in the position of extension All three cases were dismissed in celluloid splints clinically cured less than a year after treatment had been commenced The treatment might then be described as having been successful only in the early lesions of children Only five cases of tuberculous hip disease were treated by this method All five were children with hips still extremely painful on manipulation and showing no signs of progress after many months of extension in bed; in none was abscess or sinus present In one abscess formation occurred after the eighth injection; this complication was satisfactorily treated to a conclusion and there was latterly no pain on attempted manipulation of the joint In another child an abscess formed during the second course and here again pain was latterly absent The remaining three showed marked improvement on treatment, and two months after the second course of injections had ceased each had painless hip and had put on weight.

Treatment of Tuberculous Glands

Practically no success has been obtained in treating tuberculous glands by injections No matter how careful one's technique in aspirating, a gland abscess, once formed, almost invariably gives rise to a sinus. It has been found that those compounds specially recommended as causing liquefaction in caseated glands do not fulfil that expectation They cause considerable pain on injection and very often provoke a severe reaction in the shape of marked localised swelling and tenderness. The sulphoricinate of soda compound is particularly severe in this respect, the skin over the gland generally sloughs and leaves a nasty fungating ulcer Camphor naphthol in glycerine also provokes a severe reaction, although not nearly so severe as the one first mentioned It has never in our experience caused liquefaction in a gland mass, although it does cause pus already formed to become more liquid and easier to aspirate Six cases were tried with a compound termed ethyliodoricio-oleate made by Burroughs Wellcome and Co The enlarged gland masses were injected bi-weekly on ten occasions; although no severe reaction resulted, the treatment was found to be of little avail as far as the absorption of the tumour was concerned Probably it is better to try treatment by aspiration in the case of a gland abscess already formed, as even if it does break down on treatment, as it almost always does, the cosmetic result on healing is probably better than if one operated at that stage But in cases of ordinary enlarged tuberculous glands before the stage of abscess or sinus formation there is no doubt that operation combined with sanatorium treatment gives much the best result

In concluding this paper I should like to thank Dr G Watson, the superintendent, and Mr G Taylor, the visiting surgeon for liberty to make use of the material provided I should like also to thank Dr E McPhee, Dr G C Campbell, and Dr A H Bowman, former residents of the hospital, for permission to use their notes on cases under their charge for the purpose of this article.

Clinical and Laboratory Notes.

TWO CASES OF
STRICTURE OF THE JEJUNUM

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The following cases are considered to be of sufficient rarity to be placed on record

Syphilitic Stricture of Jejunum

J K, male, aged 58, was admitted with a history of seven months abdominal pain coming on two hours after meals The pain was colicky, appeared suddenly, and died away gradually, and was occasionally relieved by food. It might also persist for one or two days without relief, but on two occasions the patient was free for about a week The pain began in the left hypochondrium and then radiated round the lower abdomen to the right, finally spreading diffusely over the abdomen, it was accompanied by much rumbling of the intestines The patient had been doubled up occasionally and awakened at all times of the night

Vomiting occurred several times but it had little relation to the pain and was present with constipation, it often relieved the pain The vomit varied in amount and sometimes contained undigested food, there was never any hæmatemesis Constipation was prominent and was always associated with the pain, for two months it had alternated with slimy diarrhœa The constipated stools were described as being like nuts and the patient said that he had lately lost a considerable amount of flesh There was no melæna and no jaundice

On examination the abdomen was found to be distended especially in the flanks Visible peristalsis could not be discovered There was tenderness at a point in the left hypochondrium corresponding to the site of origin of the pain, and the rectum, which was empty, was dilated

Radiographic Examination.—An opaque enema was administered and the appearance was in favour of an annular obstruction of the ascending colon. An opaque meal was advised but the patient's condition made it impracticable. The constipation became worse and proved intractable to enemata. Distension increased and it was decided to explore the abdomen.

Operation.—The abdomen was opened by a right paramedian incision. The cæcum was collapsed and no abnormality was discovered in the large intestine. The small intestine was found to be enormously dilated in its upper part. The contracted portion was traced upwards and led to a ring-like stricture which was hard and had almost occluded the lumen of the gut. Above this the gut had a diameter of 2 inches, the wall was thick, œdematous, and somewhat congested. The neighbouring mesenteric glands were enlarged, and one of them was enucleated for microscopical examination. In view of the state of the intestine above the stricture it was decided not to perform lateral anastomosis, and the stricture was brought out in a loop. Jejunostomy was then done with a Paul's tube, and a spigot was passed through the mesentery.

After operation large quantities of feculent fluid drained from the tube, but the patient developed bronchopneumonia on the fourth day and died on the seventh.

Pathological Reports.—The excised gland was described as a "fibro-caseous and granulomatous lymphatic gland from mesentery, possibly Hodgkin, possibly syphilitic. No evidence of tuberculosis."

The post-mortem report described the condition as follows: "Almost healed ulcer encircling and causing great stenosis of lumen of intestine, 8½ feet below duodenojejunal flexure and 10½ feet above the cæcum. Thickening by tough pliable fibrous tissue of wall of intestine at site of ulcer. Great distension (9 cm. circumference) and muscular hypertrophy (0.3 cm. thick) and œdematous thickening of mucosa in jejunum above stricture. Severe mucous catarrh above stricture. Moderate distension without hypertrophy of small intestine below stricture. Collapse of large intestine. Paul's tube 6 cm. above stricture. Extensive fæcal staining of laparotomy wound in abdominal wall, none of peritoneum. Severe general exudate of fibrin and pus throughout abdomen. No other ulcers or scars in intestine. Lymphatic gland in middle tier of mesentery entirely replaced by grey dense fibrosis and one rubbery area of necrosis. No abnormality save for slight chronic inflammatory swelling in other mesenteric glands. No abnormality in testicles or epididymis. No scar on penis. Purulent bronchitis and slight acute bronchiectasis with purulent nodules of peribronchial consolidation becoming confluent by an intervening red fibrinous pneumonia throughout the right lower lobe and in lower and posterior border of right upper lobe. The post-mortem Wassermann reaction was positive."

Secondary Carcinoma of Jejunum

J. H., aged 68, was admitted with a long history of abdominal pain and flatulence. Two years before she had an attack of abdominal pain and vomiting. This was associated with sweating, and the pain caused her to double up. The attack was followed by jaundice with dark urine and pale motions. Similar attacks occurred three months, and again six weeks, before admission. Nine days previously an even more severe attack occurred in which there was slight jaundice and pale stools. The vomiting had become persistent in the last 26 hours and the vomit had begun to smell. She had passed no flatus for four days, and her bowels had not been opened since the persistent vomiting started.

On admission she had a temperature of 98° F. and a pulse of 128. There was some distension of the abdomen and slight tenderness in the right lumbar region. The patient was very fat, and it was difficult to elicit any further signs. An enema was administered with a large fæcal result but no flatus was passed. Her stomach was washed out prior to operation. A diagnosis of obstruction due to gall-stones was made and immediate operation decided upon.

Operation.—Right paramedian incision. Great distension of the first 6 feet of intestine terminating at a nodular constriction which felt very hard. Secondary nodules on the peritoneum. The growth, together with the adjacent gut, was brought out as a loop and the mesentery was transfixed with a spigot. The loop of gut was incised and a rubber tube passed upwards was sutured and invaginated inwards forming a jejunostomy. It was decided to perform this operation because of the fæcal vomiting and the marked distension of the proximal gut. The tube discharged well after the operation, but it became loose and was removed on the fifth day. On the eleventh day after the first operation her general condition was good, her temperature normal, and her pulse 88, and it was decided to perform the second stage of the operation.

Second Operation.—The protruding loop with the jejunostomy and growth were removed with the cautery, and the clamped extremities of gut were tied with silk ligatures. The abdomen was then reopened and the ligatured ends of the gut embedded with purse-string sutures. A lateral anastomosis was performed, and a drainage-tube was passed through the abdominal wall, which was then sutured.

The patient appeared to do well, but collapsed on the second day.

Pathological Reports.—The report on the specimen removed stated that there was a greyish-white nodule at the mesenteric border of the gut, partially encircling the intestine and producing marked constriction at this point. Microscopically it was seen to consist of secondary tubular and columnar-celled carcinoma invading the small intestine.

The post-mortem report was as follows: "General fibrino-purulent peritonitis. Carcinoma of the gall-bladder. Almost pure cholesterin calculus (2.3 by 1.7 cm.) filling thin fibrous walled gall-bladder. Moderately firm, partly medullary, white, coarsely granular carcinomatous infiltration of fundus of gall-bladder (3 by 2 cm.). Soft polyp of medullary growth projecting into lumen of gall-bladder and adherent to stone. Nodular carcinomatous infiltration of omentum where adherent to fundus of gall-bladder with formation of lump of secondary carcinoma (about 4.5 cm. in diameter). Carcinomatous infiltration extending from this secondary mass through peritoneum and slightly into muscularis of hepatic flexure of colon causing slight constriction of colon at this point. Small ill-defined secondary nodules in peritoneum of mesentery, especially ileocæcal angle and ascending colon. Secondary carcinomatous nodule in peritoneum of lesser curve of pyloric canal invading muscularis. Tough creamy-white nodule in left round ligament at internal abdominal ring. No secondaries in Douglas's pouch nor in liver or any gland. Numerous fat necroses in pancreas. Intact lateral anastomosis 4¼ feet below duodenojejunal flexure. Distension of small intestine above anastomosis."

Comment

Syphilis of the alimentary tract, except at its commencement and its termination, is an exceedingly rare condition. A stricture in the small intestine leading to such obstruction as in the first case is extremely uncommon because the fluidity of the contents usually results in the obstruction giving few symptoms. Therefore the rarity of the case when due to syphilis must be established. I can find no such case recorded in the literature, and surgical text-books do not mention the possibility. Another feature of the case was the presence of gummatous glands in the mesentery and at the time of the operation this led to the belief that the case was one of carcinoma with secondary deposits in the glands.

The second case is interesting in that a carcinoma of the gall-bladder, small in itself and with no secondaries in the glands or liver, gave rise to constriction affecting the gut both in the large and small intestine. At the time of operation the ring carcinoma in the jejunum was thought to be primary and the mass near the liver to be secondary, whereas the reverse was the true state of affairs. Cases in which a secondary nodule of carcinoma causes an obstruction of the small intestine must be extremely uncommon, especially so closely simulating a primary growth.

The question of *treatment* in these two cases presented difficulties which were not surmounted. It was decided to do a jejunostomy in each case because of the enormous distension above the stricture, in the hope that drainage of the intestine would relieve the acute obstruction and allow secondary excision of the stricture and anastomosis to be performed later. In the first case the patient became rapidly dehydrated and died rapidly. In the second, the additional operation was performed but the patient died rapidly of general peritonitis although the anastomosis was intact and every care was taken to prevent the spread of infection from the wound. Despite the fatal results, however, it is felt that the principle of drainage of the gut is a right one. The alternative method embodying this principle would be to resect the infected portion of the gut and effect a lateral anastomosis by the introduction of a tube for drainage of the jejunum above the anastomosis. This would be done after the method of a Witzel's gastrostomy and would not entail a further operation for its closure. End-to-end anastomosis in such cases appears to be impracticable.

because of the great difference in thickness of the walls of the proximal and distal segments of the intestine The alternative method has the disadvantage of prolonging the operation in unsuitable subjects and the risk of leakage is necessarily increased

In the first case the findings were a complete surprise as the history and the radiographic examination suggested an obstruction of the large intestine In the second case diagnosis of obstruction due to a gall-stone was made, but it was never imagined that it had been produced in such a circuitous way

In conclusion I wish to thank Mr H S Souttar and Mr Russell Howard, in whose beds these patients were, for permission to publish this account

A CASE OF
TUBERCULOUS SALPINGITIS ASSOCIATED WITH ACUTE GONORRHŒA

By Margaret Salmond, M D , B S Lond ,
THIRD ASSISTANT, GYNÆCOLOGICAL UNIT, ROYAL FREE HOSPITAL

The following case shows some unusual features —

The patient was an unmarried girl clerk, aged 18, and was admitted to the Royal Free Hospital on May 15th, 1925, complaining of pain in the lower abdomen and vaginal discharge The pain was of a sharp and shooting character, and worse on the left side of the abdomen About April 5th she had noticed abdominal pain and vaginal discharge, that was a few days after admitted misconduct, and a fortnight later she was sent to the infirmary where, after a week's local treatment, a right Bartholin's cyst was excised On leaving the infirmary she had pain in the left groin She was sent up to the V D Department at the Royal Free Hospital for treatment A diagnosis of acute gonorrhœa and gonococcal salpingitis was made, and she was sent to one of the hostels in connexion with the department

The findings then were as follows She had a profuse purulent vaginal discharge, the cervix and urethra were inflamed, and there were some hard and nodular lymphatic glands in the groin. There was an indefinite tender mass on the left side of the pelvis, and the uterus was not palpable apart from the mass The rectum and anus were normal The menstrual history showed no abnormality until the onset of illness, since then there had been amenorrhœa The onset of periods was at 15 years, the periodicity 3–4 days every 28 days, the loss rather profuse The circulatory and respiratory systems were normal There was no past illness except measles, but there was a well-marked family history of tuberculosis Films from the cervix and urethra showed much fresh pus and organisms resembling gonococci, and the Wassermann reaction was negative She had a temperature of 101° F and a pulse of 112 She was seen again on May 15th and found to have generalised abdominal tenderness and involvement of both tubes, and was admitted to hospital

Condition on admission She had a temperature of 99° and pulse 96, and was rigid over the left lower abdomen and tender all over the abdomen, especially on the left side Vaginal examination showed both tubes swollen and tender She was treated with belladonna fomentations to the abdomen and hot douches of 2 per cent potassium permanganate The abdominal pain improved on this treatment, and it was decided to operate if possible when the temperature was quiescent The temperature remained irregular for 10 days, the maximum being a rise to 101 8° After this, for a further period of seven days, the temperature became more swinging in character with a well-marked 6 P M rise and then settled down to normal for three days previous to operation Urethral films taken during this period showed pus and gonococci At the operation the findings were as follows The sigmoid colon was adherent to the bladder, left tube and ovary These adhesions were separated, and a small abscess was opened which had been enclosed by them. There was pus also in the pouch of Douglas The pus was thick, yellow and blood-stained The left ovary was much enlarged and dark in colour The left tube was thickened, inflamed, and adherent to the ovary by its fimbriated end The uterus was normal but infantile in type The right ovary was normal The right tube was slightly thickened and inflamed, but patent A left salpingo-oöphorectomy was done The pelvis was swabbed out with collosal argentum, and the wound closed without drainage The ovary on section showed a blood cyst and a degenerate corpus luteum The tubes were not patent The pathological report on sections from both tube and ovary showed well-marked tuberculosis The pus from the peritoneal cavity was sterile and contained polymorphonuclear and mononuclear cells The temperature after operation was irregular for four days, and then began to swing again, the maximum rise being at 6 P M , and the maximum height 103° The rise gradually decreased, and settled to normal on the sixteenth day following operation Treatment for gonorrhœa was resumed on the eighth day after operation Saline and 2 per cent lactic acid douches were given, and the urethra painted with 5 per cent mercurochrome Films taken from the urethra four days after treatment showed some pus and gonococci Films taken on discharge, from urethra showed much fresh pus and no gonococci, from the cervix, epithelial cells, a few pus cells and no gonococci

The abdominal tenderness gradually disappeared, and the wound healed by first intention.

On discharge the patient had still an erosion of cervix and some vaginal discharge but her general health was good, and she was afebrile She was transferred to Whipp's Cross Infirmary for open air treatment for tuberculosis and local treatment for gonorrhœa

I am indebted to Dr Vaughan Sawyer and Dr Margaret Rorke for permission to publish this case

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF SURGERY

At a special meeting of this Section held on Jan 19th Mr V Warren Low, the President, took the chair, and Prof M T Finney, of the Johns Hopkins Hospital, Baltimore, read a paper on the

Pathogenesis of Gastric and Duodenal Ulcer, with a a consideration of the general rules of treatment Prof Finney began by surveying research into the subject from the investigations of Matthew Baillie (1793) and Abercrombie (1824) until recent times The origin and persistence of gastric ulcer, he said, had been a source of much speculation and experiment and most observers had agreed that the action of gastric juice played an important part in the development and continuance of ulceration Still, the action of gastric juice alone was not sufficient in itself to start ulceration in normal gastric mucosa nor did it prevent the rapid healing of artificially produced defects when the blood-supply had not been interfered with Ninety-eight per cent of ulcers of stomach and duodenum were in the region of the pylorus, the posterior part of the lesser curvature the pyloric antrum, and the first part of the duodenum —i e , in the parts supplied by the right gastric artery and its supraduodenal branch There seemed to be a relationship between these two facts If the narrow margin of safety in the human being was encroached upon by an injury to the mucosa, the eroding action of the gastric juice probably sufficed to develop a chronic ulcer Prof Finney proceeded to review the various theories of causation—inflammatory, neurogenic, circulatory bacterial, digestive, and corrosive

Malignant Transformation of Ulcers

Cruveilhier in 1829 had been the first to suggest that these ulcers might take on a malignant transformation, went on Prof Finney, the matter was of importance because the extent of a surgeon's belief in the possibility of such change would influence his decision what operation to employ The percentage of cases in which malignant change had occurred in a simple ulcer appeared to have varied from 5 to 2½, and there must, therefore, be standardised criteria in order that comparisons could be made There were certainly well authenticated cases in which carcinoma had been preceded by a long history of ulcer In 799 cases operated upon at the Mayo Clinic for gastric ulcer, 4 1 per cent died of cancer during the seven-year period, while in 1610 cases quoted by Ewing the frequency was 2 2 per cent though it was thought that in some of these the lesion had been malignant from the start

Operative Treatment

A plastic operation on the pylorus, continued Prof Finney, had first been carried out in 1886 by Heineke, and in the following year it had been done by Mikulicz Kocher's side-to-end gastro-duodenostomy following pylorectomy was reported in 1891 In 1885 it was considered that the right treatment for gastric ulcer was medical but Welch, writing in that year, admitted that resection of gastric ulcers which resisted all other methods of treatment was a justifiable operation Surgical treatment was largely advanced by the idea that ulcers might become carcinomatous, as well as by the grave danger of hæmorrhage, perforation or obstruction Radiography had helped to establish a definite syndrome Operations for ulcer of the stomach could be classed as either conservative or radical. The first group was further divisible into (1) procedures directed to local excision, cauterisation or suture of the ulcer; (2) local excision plus gastroenterostomy or pyloroplasty, (3) gastroenterostomy or pyloroplasty alone An operation was radical when not only the ulcer, but also the part of the stomach which developed 90 per cent of the ulcers was removed In his choice of the operation in a given case the surgeon should be largely influenced by the condition of his patient and his ability to withstand hæmorrhage or perforation with resultant shock Such local conditions as dense adhesions would have a limiting effect on the operation If operation were done in the quiescent stage the patient's condition would not loom so large and in that case the opinion formed about the operation needed would depend on (1) the importance of removing the ulcer-bearing part of the stomach, (2) the efficacy of reducing the acidity by a large resection (3) the possibility of carcinomatous degeneration

Pre-operative Preparation

Unless the operation was to be for the relief of urgent conditions, said Prof Finney, each patient should be carefully prepared *beforehand for this* reduced infection to a quite negligible quantity The routine practised in his hospital included frequent antiseptic cleansing of the *teeth*, prescription of a sterile diet (cooked foods, pasteurised or boiled milk eggs, orange-juice boiled water, &c) and, if gastric stasis was present, lavage of the stomach once or twice a day. It was found that the acid stomach would sterilise itself in 48 hours provided no infecting matter was meanwhile ingested This did not apply, however to ulcerating carcinoma of the walls of the stomach, the *Streptococcus pyogenes* being commonly found in these cases Efforts to sterilise the gastro-intestinal tract by drugs had been futile Careful physical examination of patients should never be omitted, unless the urgency for operation was very great Starved and dehydrated patients should first be brought *into* an improved condition With regard to the anæsthetic, the claims of local as against general anæsthesia should be carefully weighed, for regional nerve-block had given excellent results, though it required a thoroughly capable administrator In the actual operation it was necessary to pay scrupulous attention to details of technique and of asepsis, the tissues must be gently handled and undue haste avoided Each surgeon probably had a favourite operation, but he should not permit himself to make use of it on every occasion, as to do so was to court disaster

Summary

Summarising his views, Prof Finney said that no surgical procedure should be carried out on the stomach without previous consultation with a competent physician Resection of an ulcer *did not mean* that it would not recur As a general rule pyloroplasty or gastroduodenostomy associated when possible with resection of the ulcer would be his method of choice This relegated gastroenterostomy and extensive gastric resection to subordinate places. Still from inability to mobilise the duodenum satisfactorily, pyloroplasty was not always a practical proposition When extensive resection of the pyloric part of the stomach was indicated gastroduodenostomy by the Harberer-Finney method was the operation of choice when it could be done In the presence of malignant disease, if operation was indicated at all, the most radical possible procedure was really in effect the most conservative This principle was not the guide, however, in benign conditions, and indeed the reverse was true

Discussion

Sir **Anthony Bowlby** proposed a cordial vote of thanks to Prof Finney and referred to his distinction in all branches of general surgery; at the same time he expressed his high appreciation of Prof Finney's activities in France during the late war, when he served as Chief Medical Adviser to the American Army

Sir **James Berry** (President of the Royal Society of Medicine) seconded this vote of thanks, which was carried with acclamation

Dr **Leon Jona** (Melbourne) gave his views on the pathogenesis of duodenal ulcer, recounting some experiments he had performed on dogs On tying the main pancreatic duct he found that duodenal ulcer resulted every time, and his research had convinced him that diminution or absence of the normal pancreatic juice was a factor in the pathogenesis of gastroduodenal ulcer The usual situation of the ulcers bore out this view

Mr. E R **Flint** (Leeds) agreed with Prof Finney about the superiority of gastroduodenostomy to gastroenterostomy He had himself operated on nearly 200 such cases, and in only nine of them had he failed to mobilise the duodenum. His technique differed somewhat from that of Prof Finney, as he made his anastomosis in the second part and he did not use a clamp on the *duodenum* nor excise the mucosa Also, he did not take in gastric mucosa with the inner stitch if it could be avoided

Mr F A. **Jeans** (Liverpool) spoke of a series of 36 cases of hour-glass stomach with a 15 years' history; in this series only two were malignant which showed how unlikely it was that even long-standing ulcer would result in malignant degeneration He also referred to a class of people who whatever was done for them, were persistent ulcerators and perforators

Mr R P **Rowlands** said that he believed obstruction in the duodenum to be an important cause of these ulcers On the continent and to some extent in this country, there was at present a wave of enthusiasm which led to surgeons doing too much personally, he could never see the advantage of performing partial gastrectomy for simple ulcer and the mortality from this operation was much too high. For many years he had been a strong believer in Prof Finney's operation He had been very pleased to hear him insist on the importance of adequate preparation of patients before operation

Mr A. J **Walton** agreed that there was a tendency to do too much operatively for gastric and duodenal ulcer. Partial gastrectomies were mostly not only wrong and dangerous, but were also unnecessary These ulcers were a disease peculiar to civilised man Up to last June he had had 317 cases of ulcer of the lesser curvature 305 of ulcer of the duodenum 165 pyloric ulcers—figures which did not support the view that in cases of ulcer there was some peculiarity in the anatomy of the duodenum. A Hurst had drawn attention to the importance of hyperacidity, and had pointed out that in some individuals this was associated with a congenital malformation: Mr Walton attached considerable importance to this factor in the ætiology He thought it was definitely increased by the modern over-indulgence in cigarettes Carcinomatous degeneration occurred in so small a proportion of ulcers that there seemed no warrant for carrying out large gastrectomies on account of that fear For hour-glass stomach he did a wide wedge-resection; if that was not possible he resorted to partial gastrectomy

Prof C A **PANNETT** said that none of the ulcers produced in animal experiments were identical with those found in the human being In man the ulcers owed their origin, he believed, to a specific organism which had not yet been discovered, and a requisite condition for the formation of ulcer was a combination of pyloric and intestinal secretions He considered that the pyloric end of the stomach was the region at fault Sometimes ulcers formed in Meckel's diverticulum and perforated, they were peptic ulcers The infection came from the intestinal canal, not from the blood stream.

Mr **HERBERT PATERSON** believed that there was no dependable evidence that in even 5 per cent of cases a simple ulcer assumed a malignant form If even 5 per cent did so, it would be expected that a considerable number of people operated on for simple ulcer would die of carcinoma, but that was not the fact

Reply

Prof **FINNEY**, in reply, said that he did not feel that he was an enthusiast, he did not do pyloroplasty every time he opened an abdomen But his experience had shown him that it was the best method whenever it was feasible and practicable In 85 per cent of his cases he had been able to do it with satisfaction When there seemed likely to be any tension, a thing to be carefully avoided in the abdomen, he desisted and carried out gastroenterostomy For indurated ulcer he did a wide resection Surgery demanded as clear and accurate a diagnosis as all the resources at command made possible, it should be the resultant of the best skill of the radiologist and physician as well as of the surgeon, and every test likely to be of value must be used When, on opening the abdomen, he found no demonstrable, palpable lesion, he did nothing He thanked Dr Jona for his suggestion, which might be fruitful, on arriving home he would go into the question He concluded with a word of gratitude to Sir Anthony Bowlby and the staff under him for the kindly cooperation shown to him and his colleagues in France on the entry of the American Army into the war

SECTION OF OBSTETRICS OF THE ROYAL SOCIETY OF MEDICINE AND MEDICO-LEGAL SOCIETY.

THE ETHICAL, LEGAL, AND MEDICAL ASPECTS OF ABORTION

A JOINT meeting of the Section of Obstetrics of the Royal Society of Medicine and the Medico-Legal Society was held on Jan 21st, Lord Justice **SALTER** in the chair

The discussion was opened by Dr J S **FAIRBAIRN** and Lord **RIDDELL**, whose papers are published on pages 217 and 219 respectively

Dr **RUSSELL ANDREWS** apologised for the absence owing to influenza of Dr T **WATTS EDEN**, whose place he had been asked to fill at the last moment He agreed in the main with Dr Fairbairn, but said that it was an exaggeration to state that the old indication for abortion—danger to the life and health of the mother—had been thrown over. He also disagreed with the suggestion that, in many cases where abortion was proposed to consultants, there had not been a fair trial of medical means of relieving the distressing symptoms In most cases the patient's medical attendant had made attempts to get rid of the troubles before considering abortion Otherwise he thought Dr Fairbairn had put the case very fairly, and had suggested the difficulties in which an honest man might find himself in trying to do the best for his patient and yet keep within the law Cases brought to the specialist by a doctor usually required a great deal of consideration, but cases that came on their own were very often easily dealt with The patient and her husband were usually unaware that there was any legal bar to induction of abortion, and a few minutes' commonsense conversation would convince both that there was no indication A small number had to be told that the doctor could have nothing more to do with their case, and in a few more cases it was clear that continuation of the pregnancy must mean danger to life or health

Borderline Cases

The borderline cases were very difficult, some of the most difficult a consultant ever had to deal with He sympathised very much with the patient—generally a tired, anxious, excited woman who felt that she could not go on, not necessarily from selfish motives, but for the sake of her husband and children, to whom she would be very little use for many months It was necessary to guard against being swayed too much by sympathy Another factor was the fixed idea in the minds of many husbands and wives that pregnancy was very dangerous, often the patient had been told by doctor or midwife that she must never become pregnant again When he (the speaker) had considered that this advice had been given lightly he had remarked that there was a difference between advising against a future pregnancy and agreeing to destroy a life that had been begun. The answer he received was "There would not be such a difference if only doctors would be more logical" When the question was one of impairment of health the difficulty that arose was the difference of opinion as to how serious and how permanent the damage to health must be to justify abortion Cases could only be judged on their merits The consultant longed for a definite peg on which to hang his decision

Dr Andrews quoted two examples of the borderline case in which he had considered termination of the pregnancy justifiable

CASE 1 —A lady of 37 had had five children, the last three being at that time aged 4, 2½, and 1 respectively She had had very poor health during the previous pregnancy, being almost an invalid Her doctor had strongly advised her against having another child on account of the strain Her health for the last 12 months had been very poor, though there was no organic disease, and her symptoms, though neurasthenic, were very real to her She was two months' pregnant and her health had greatly deteriorated in that time She was haggard, anxious, losing weight, suffering from insomnia, severe nausea, and considerable tinnitus She was devoted to her children and said she felt she could not look forward to another year of invalidism during which she could take very little part in their upbringing or be any companion to her husband

CASE 2 —A poor woman of 43 had had five pregnancies; three had gone to term and of these children one had died and two were delicate, she had had two spontaneous abortions at 4½ and 5½ months respectively Throughout all the pregnancies she had been very largely confined to bed, chiefly through uncontrollable retching She had never been in good health, but during her pregnancies she could not look after her family or do her work She had very poor physique and weighed under 7 st At the time of examination she was 2½ months' pregnant and again had vomiting and retching

In these cases it had not been possible to say exactly what damage would be done to the patient's health by continuation of pregnancy, and there was no danger to life Nevertheless he had felt he could satisfy his own conscience and make a fair show before any tribunal

Medical Responsibility to the Law

Sir **TRAVERS HUMPHREYS** said that those responsible for the terms of the debate had divided the subject into three parts—ethical, medical, and legal From his point of view, however, it divided itself into two abortion which was criminal and abortion which was not criminal By lawful abortion he meant the steps taken by a qualified medical man to get rid of a condition in his patient which he considered, using the best of his skill and ability, and of course honestly, on medical grounds and on medical grounds alone, to be dangerous to the safety of the patient He used the word "safety" advisedly, because the purely medical question was not one with which the law was concerned No doctor who had used the best of his skill and judgment in the sole interest of his patient need imagine for a moment that the law would call him to account It had been stated, and truly stated, that under such circumstances the sole concern of the medical man was the welfare of his patient and that welfare was her medical and not her social or economic welfare He agreed with Lord Riddell and Dr. Fairbairn that the doctor should confine himself to the medical question It might be that the patient who was asking for abortion might herself be considering such results of her pregnancy as a diseased child or disgrace to herself but these were matters in which a doctor at that stage was in no way concerned They might well form the subject of advice to his patient at other times, but when once the condition of pregnancy had arisen the golden rule must be that the doctor was not entitled to consider anything but the health and future of his patient on medical grounds When a doctor in the exercise of his discretion had decided to induce abortion there was no question of law or ethics Under what conditions and in the presence of what symptoms a doctor was entitled to take the extreme step of interfering with the ordinary course of Nature was a very interesting matter for medical men and for the intelligent man in the street but it would be an impertinence for one who claimed no medical knowledge to express any views

Criminal Abortion.

When we turned to the question of criminal abortion, said Sir Travers Humphreys we plunged at once into the realm of law and ethics. The legal question was extraordinarily simple In this country for a very long time, criminal abortion had been regarded as a very serious offence In the United States, in France, and in Belgium, to the best of his knowledge the law was very similar to our own In the Belgian penal code there was a provision that any person who caused abortion even without desiring to do so, was liable to extremely heavy punishment if he had been guilty of violence or ill-treatment Those who looked at French journals might be disposed to doubt whether the practice of abortion was regarded in France with quite the same distaste that it was in this country, but the tone of the journals had no bearing on the law In a civilised country criminal abortion would never be found regarded as other than grossly improper and in the last degree punishable. What Dr Fairbairn had remarked about the approval of the practice by the Soviet Government did not affect this observation, he had used the term "civilised" country It was he supposed, universally recognised that the practice of abortion and any operation or means to that end taken by any other than a highly qualified and skilful person must be a source of the greatest possible danger to the woman concerned It must needs be an intolerable burden to the medical profession if the doctor had to say on other than medical grounds whether he was to relieve a woman of her condition. There was no doubt that the increasing prevalence of the crime in this country was very largely due to the widespread belief that abortion at any rate in the early stages of pregnancy, might be induced without any risk to the woman concerned He had heard Sir Bernard Spilsbury state in the witness-box that he entirely disagreed with that idea, and that there was no such thing as safely-procured abortion If that were so, Sir Travers hoped that medical men would lose no opportunity of impressing the fact upon those whom they might think likely to be under a misapprehension as to the danger of the practice

The Ethical Aspect

He supposed that by ethics was meant in this connexion that branch of philosophy that dealt rather with things as they ought to be than as they were with rules of conscience rather than with rules of law It might be said that it must be ethically wrong wilfully and intentionally to break the laws of one's country, but he was not so sure about it Even at the risk of being considered a very immoral person, he would say that there might be, and had been, cases in which it was very difficult if not impossible to attribute any moral blame to a person who had helped a girl out of her trouble. He quoted as an example a case recently heard at the Central Criminal Court where a French girl had refused repeated offers of marriage from the young father of her child, had refused his offer to send her back to France for the confinement, and had insisted on procuring abortion, telling him that if he would not help her she would go to her girl friends who would He had asked the advice of a much older man who had assured him that it was a simple matter and had referred him to a "doctor" for the operation The girl had died of peritonitis and the doctor the young man and his friend were all charged with manslaughter The judge refused to punish the lad with a day's imprisonment, and he (Sir Travers) was glad of it It was difficult to regard that young man as having done anything but what most men would say was right under the circumstances Anybody who deliberately made up his mind to break the law must be prepared to take the consequences but if he were able to prove that his motives and intentions were above suspicion and that he had acted from the dictates of his conscience, he had not much to fear, for our judges were men before they were judges and judges were and remained, very human

Pregnancy and Tuberculosis

Dr HALLIDAY SUTHERLAND said that while gynæcologists mentioned tuberculosis as a very probable indication for abortion, the question did not loom large in the minds of those who were chiefly concerned in the treatment of tuberculosis Tuberculosis had no constant influence on pregnancy and pregnancy had no constant influence on the course of tuberculosis Everyone knew cases where a woman suffering from the disease brought forth a healthy child where pregnancy was associated with an increase in the disease and where it was accompanied by an amelioration so marked that the physician was led to give an unduly favourable prognosis Figures from the Stockholm Maternity Centre had been published dealing with the influence of pregnancy on the expectation of life of the tuberculous woman. In 203 pregnant diseased women and 396 non-pregnant the results at the end of a year showed that of the pregnant 12 8 per cent were dead, of the non-pregnant 14 6 per cent. Two years later 26 per cent of the pregnant had died and 30 per cent of the non-pregnant On these figures the tuberculous woman who became pregnant had a better expectation of life than the woman who did not Other figures showed that pregnancy in the second stage exerted an unfavourable effect on 12 per cent of tuberculous women. Gynæcologists were at complete variance; some had statistics showing that the aborted lived longer some that they died sooner, but their statistics had the disadvantages that they did not specify the stage of the disease and the early and late stages were not comparable. It must be remembered that a very early diagnosis of tuberculosis might be of considerable value to those who desired for non-medical reasons to arrange an unimpeachable, unassailable abortion He asked whether the profession was prepared to prolong the lives of 12 tuberculous women by paying the price of killing one hundred fœtuses He hoped the medical sanctions for abortion would be curtailed and not extended since it was at best an act of despair and at worst a crime akin to murder. If any section of the profession were carried away by the wave of criminal sentimentality that was passing over the country, their activities might well be checked by making abortion notifiable

The Rights of the Mother

Earl RUSSELL said he did not disagree with the criteria Dr Fairbairn had laid down, but it did strike him that there was no legal warrant for excusing the felony of abortion on the grounds that the patient's health would be improved by it The

Prof C A PANNETT said that none of the ulcers produced in animal experiments were identical with those found in the human being In man the ulcers owed their origin, he believed, to a specific organism which had not yet been discovered, and a requisite condition for the formation of ulcer was a combination of pyloric and intestinal secretions He considered that the pyloric end of the stomach was the region at fault Sometimes ulcers formed in Meckel's diverticulum and perforated, they were peptic ulcers The infection came from the intestinal canal, not from the blood stream

MR HERBERT PATERSON believed that there was no dependable evidence that in even 5 per cent of cases a simple ulcer assumed a malignant form If even 5 per cent did so, it would be expected that a considerable number of people operated on for simple ulcer would die of carcinoma, but that was not the fact

Reply

Prof FINNEY, in reply said that he did not feel that he was an enthusiast, he did not do pyloroplasty every time he opened an abdomen But his experience had shown him that it was the best method whenever it was feasible and practicable In 85 per cent of his cases he had been able to do it with satisfaction When there seemed likely to be any tension, a thing to be carefully avoided in the abdomen, he desisted and carried out gastro-enterostomy For indurated ulcer he did a wide resection Surgery demanded as clear and accurate a diagnosis as all the resources at command made possible, it should be the resultant of the best skill of the radiologist and physician as well as of the surgeon, and every test likely to be of value must be used When, on opening the abdomen, he found no demonstrable, palpable lesion, he did nothing He thanked Dr Jona for his suggestion, which might be fruitful, on arriving home he would go into the question He concluded with a word of gratitude to Sir Anthony Bowlby and the staff under him for the kindly cooperation shown to him and his colleagues in France on the entry of the American Army into the war

SECTION OF OBSTETRICS OF THE ROYAL SOCIETY OF MEDICINE AND MEDICO-LEGAL SOCIETY

THE ETHICAL, LEGAL, AND MEDICAL ASPECTS OF ABORTION

A JOINT meeting of the Section of Obstetrics of the Royal Society of Medicine and the Medico-Legal Society was held on Jan 21st, Lord Justice SALTER in the chair

The discussion was opened by Dr J. S FAIRBAIRN and Lord RIDDELL, whose papers are published on pages 217 and 219 respectively

Dr RUSSELL ANDREWS apologised for the absence owing to influenza of Dr T WATTS EDEN, whose place he had been asked to fill at the last moment He agreed in the main with Dr Fairbairn, but said that it was an exaggeration to state that the old indication for abortion—danger to the life and health of the mother—had been thrown over He also disagreed with the suggestion that, in many cases where abortion was proposed to consultants, there had not been a fair trial of medical means of relieving the distressing symptoms In most cases the patient's medical attendant had made attempts to get rid of the troubles before considering abortion Otherwise he thought Dr Fairbairn had put the case very fairly, and had suggested the difficulties in which an honest man might find himself in trying to do the best for his patient and yet keep within the law Cases brought to the specialist by a doctor usually required a great deal of consideration, but cases that came on their own were very often easily dealt with. The patient and her husband were usually unaware that there was any legal bar to induction of abortion, and a few minutes' commonsense conversation would convince both that there was no indication A small number had to be told that the doctor could have nothing more to do with their case, and in a few more cases it was clear that continuation of the pregnancy must mean danger to life or health

Borderline Cases

The borderline cases were very difficult, some of the most difficult a consultant ever had to deal with He sympathised very much with the patient—generally a tired, anxious, excited woman who felt that she could not go on, not necessarily from selfish motives, but for the sake of her husband and children, to whom she would be very little use for many months It was necessary to guard against being swayed too much by sympathy Another factor was the fixed idea in the minds of many husbands and wives that pregnancy was very dangerous, often the patient had been told by doctor or midwife that she must never become pregnant again When he (the speaker) had considered that this advice had been given lightly he had remarked that there was a difference between advising against a future pregnancy and agreeing to destroy a life that had been begun The answer he received was " There would not be such a difference if only doctors would be more logical " When the question was one of impairment of health the difficulty that arose was the difference of opinion as to how serious and how permanent the damage to health must be to justify abortion Cases could only be judged on their merits The consultant longed for a definite peg on which to hang his decision

Dr Andrews quoted two examples of the borderline case in which he had considered termination of the pregnancy justifiable

CASE 1 —A lady of 37 had had five children, the last three being at that time aged 4, 2½, and 1 respectively She had had very poor health during the previous pregnancy, being almost an invalid Her doctor had strongly advised her against having another child on account of the strain Her health for the last 12 months had been very poor, though there was no organic disease, and her symptoms, though neurasthenic, were very real to her She was two months' pregnant and her health had greatly deteriorated in that time She was haggard, anxious, losing weight, suffering from insomnia, severe nausea, and considerable tinnitus She was devoted to her children and said she felt she could not look forward to another year of invalidism during which she could take very little part in their upbringing or be any companion to her husband

CASE 2 —A poor woman of 43 had had five pregnancies, three had gone to term and of these children one had died and two were delicate, she had had two spontaneous abortions at 4½ and 5½ months respectively Throughout all the pregnancies she had been very largely confined to bed, chiefly through uncontrollable retching She had never been in good health, but during her pregnancies she could not look after her family or do her work She had very poor physique and weighed under 7 st At the time of examination she was 2½ months' pregnant and again had vomiting and retching

In these cases it had not been possible to say exactly what damage would be done to the patient's health by continuation of pregnancy, and there was no danger to life Nevertheless he had felt he could satisfy his own conscience and make a fair show before any tribunal

Medical Responsibility to the Law

SIR TRAVERS HUMPHREYS said that those responsible for the terms of the debate had divided the subject into three parts—ethical, medical, and legal From his point of view, however, it divided itself into two abortion which was criminal and abortion which was not criminal By lawful abortion he meant the steps taken by a qualified medical man to get rid of a condition in his patient which he considered, using the best of his skill and ability, and of course honestly, on medical grounds and on medical grounds alone, to be dangerous to the safety of the patient He used the word " safety " advisedly, because the purely medical question was not one with which the law was concerned No doctor who had used the best of his skill and judgment in the sole interest of his patient need imagine for a moment that the law would call him to account It had been stated and truly stated that under such circumstances the sole concern of the medical man was the welfare of his patient and that welfare was her medical and not her social or economic welfare He agreed with Lord Riddell and Dr Fairbairn that the doctor should confine himself to the medical question It might be that the patient who was asking for abortion might herself be considering such results of her pregnancy as a diseased child or disgrace to herself, but these were matters in which a doctor at that stage was in no way concerned They might well form the subject of advice to his patient at other times, but when once the condition of pregnancy had arisen the golden rule must be that the doctor was not entitled to consider anything but the health and future of his patient on medical grounds When a doctor in the exercise of his discretion had decided to induce abortion there was no question of law or ethics Under what conditions and in the presence of what symptoms a doctor was entitled to take the extreme step of interfering with the ordinary course of Nature was a very interesting matter for medical men and for the intelligent man in the street but it would be an impertinence for one who claimed no medical knowledge to express any views

Criminal Abortion

When we turned to the question of criminal abortion, said Sir Travers Humphreys, we plunged at once into the realm of law and ethics The legal question was extraordinarily simple In this country, for a very long time, criminal abortion had been regarded as a very serious offence In the United States in France, and in Belgium to the best of his knowledge the law was very similar to our own In the Belgian penal code there was a provision that any person who caused abortion even without desiring to do so, was liable to extremely heavy punishment if he had been guilty of violence or ill-treatment. Those who looked at French journals might be disposed to doubt whether the practice of abortion was regarded in France with quite the same distaste that it was in this country, but the tone of the journals had no bearing on the law In a civilised country criminal abortion would never be found regarded as other than grossly improper and in the last degree punishable. What Dr Fairbairn had remarked about the approval of the practice by the Soviet Government did not affect this observation , he had used the term "civilised" country It was, he supposed, universally recognised that the practice of abortion and any operation or means to that end taken by any other than a highly qualified and skilful person, must be a source of the greatest possible danger to the woman concerned It must needs be an intolerable burden to the medical profession if the doctor had to say on other than medical grounds whether he was to relieve a woman of her condition. There was no doubt that the increasing prevalence of the crime in this country was very largely due to the widespread belief that abortion at any rate in the early stages of pregnancy, might be induced without any risk to the woman concerned He had heard Sir Bernard Spilsbury state in the witness-box that he entirely disagreed with that idea, and that there was no such thing as safely-procured abortion If that were so, Sir Travers hoped that medical men would lose no opportunity of impressing the fact upon those whom they might think likely to be under a misapprehension as to the danger of the practice

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The Rights of the Mother

Earl **RUSSELL** said he did not disagree with the criteria Dr Fairbairn had laid down, but it did strike him that there was no legal warrant for excusing the felony of abortion on the grounds that the patient's health would be improved by it The practice of gynæcologists had been extended to a degree that amounted to relieving their patients from a very inconvenient time, and which seemed unjustified by the existing law Sir Travers Humphreys had been quite right in saying that there would be no conviction, no jury would find that a doctor had acted unlawfully when he had used his best skill in the interests of the patient This did show how the doctors were the high priests of modern civilisation and above the law, very often there was no appeal to a legal tribunal from their decision. They had to consider solely the interests of their patients, and in so doing they would apply logically to the question of the removal of a fœtus the same tests and the same degree of consideration as they would to the removal of any other tumour It seemed to him that there was something beyond the sole interests of the patient that the doctors had to consider All operations were dangerous, there were some in which the mortality was 50 per cent, and the choice was generally left to the patient It was essential that the law should be correct and unchallengeable, but the ultimate ethical view was not necessarily that on the statute book of the moment He took the general ethical view (said to be so shocking) that in a matter of this sort the mother alone should be the arbiter The child was hers, and she was the person to decide whether the early fœtus was to be disposed of or not The existing legal enactments came on the statute book on religious grounds, and on those grounds they might be defensible but nobody had any right to impose his own religious views on other people He took the view that the mother was the master of the situation, and entitled to decide if she preferred the life of the child or her own life, health or convenience There was an undoubted moral duty on every mother to do her best for her child-to-be and to ensure that it should be as happy and healthy as pre- and ante natal care could make it But the State had no abstract ethical right to interfere with the situation

Prof LOUISE McILROY spoke on the ethical aspect of the problem, and agreed with Dr Fairbairn The development of the fœtus could not be divided into stages, life began with conception and belonged to the State from conception Abortion ought to be notified to the State just as live and stillbirths were She recognised that it was very much easier for the consultant in London to carry out a general ethical programme than for a country practitioner, whose complete ruin might follow a failure to comply with the wishes of an influential patient Women must learn that they could not go into a doctor's consulting-room as if going to a bargain counter Abortion was nothing but homicide, though sometimes it might be justifiable homicide Induction of abortion was a confession of failure She would like very much to have legal permission to induce abortion in a case of rape; she did not think a woman ought to have to continue with a pregnancy forced on her against her will by an unknown person A patient returning for a second or third abortion raised a very difficult question "One patient, one abortion" was the allowance stated, yet the circumstances justifying the first would all be present on the subsequent occasions Doctors aided and abetted abortionists because they were trying to help the patient. If they could get rid of their pledge of secrecy to the patient and get justice done it would be a great help.

Dr F McCANN remarked on the wave of abortion that had passed over Europe since the war, and the Bills tabled in the Parliaments of Germany, Austria, and Switzerland to legalise it in the first three months of pregnancy He urged the meeting to take up a strong position on the ethical aspect Once loopholes were created the whole position fell, and it would be most disastrous to the country not to take a strong line It could not be too well known that there was life from conception onwards and that there was danger and very great danger in abortion at the most skilful hands Even simple dilatation of the cervix might cause very serious consequences, and emptying the womb opened channels to infection which might vitiate the results of the best operator If this were driven home, the number of cases would be limited There was a great deal of confusion about the legal position The Royal College of Physicians of London had once taken Counsel's opinion, which had been that abortion was justifiable to save the mother's life. One peculiarity about the law was that, if a woman attempted to procure abortion on herself, it was a crime if she were pregnant and not a crime if she were not Another was that the punishment was so varied, the death penalty was sometimes pronounced, the judge knowing well that it would not be carried out The law as it stood must be very difficult to administer

Mrs MARIE STOPES, D Sc, expressed surprise and regret, and protested at Dr Fairbairn's statement that the movement for constructive birth control tended to produce a slackening of the moral fibre The ethics of abortion had not yet been touched upon by any speaker in a truly fundamental way, everybody had spoken as if the condition were an exceptional one in which the patient consulted the medical profession and, if they refused abortion, the case was finished Abortion was attempted and going on to a staggering extent throughout the country by other than practitioners of medicine, in an open and bare-faced way that would astonish the meeting One speaker had spoken of his three or four cases who had not realised that there was any legal bar to abortion, she had had ten thousand such cases Over ten thousand persons had written to her asking her to perform abortion and inquiring her fee, as if it were the most natural thing in the world The open, bare-faced trade in abortifacients was enormous and scandalous and there was no legal redress She knew women who had used abortifacient pills every month of their lives This matter was not touched by the medical profession at all The medical profession refused to perform abortion, and women went to these sharks and the law could not touch them

Dr BERESFORD KINGSFORD maintained that the production of an abortion with the consent of the woman wronged no one. He agreed that the woman should be mistress of the situation The only ground on which the procuring of abortion could be held to be a crime was that it deprived the community of a possible citizen, that the Empire had many enemies and needed more children to speak with the enemy in the gate In his opinion we were getting more children than we needed, in peace we had many more than we could employ, and the Great War had taught us not to rely on the C 3 population of this island but on the united voluntary efforts of the King's Dominions throughout the world Contraception was depriving the community of far more citizens than those practitioners who worked up side-streets producing perhaps a hundred abortions, the sale of contraceptive appliances had deprived the country of tens of thousands Yet books on the subject were on every bookstall, and a great political party was bringing forward instruction in conception control as a plank in its platform A woman might be subjected to very unfair pressure by a lover or husband, and what he would insist on was that no woman should be forced to undergo the operation without her consent and until she had been informed of the risks involved

Sir BERNARD SPILSBURY said that the scientific facts could not be regarded as doubtful, the individual was alive from the moment of conception The fact of birth was a mere incident in his life The only sanction for destroying one life would be that it would endanger another or very seriously prejudice the health of the mother Borderline cases must be very difficult to decide on, yet there was the guidance that morally the operation would be murder unless there was some justification in the life of the mother. He agreed that abortion was exceedingly rife, the cases that came to court represented only a very small proportion of those occurring and there was no doubt that the proportion was much smaller than it was 20 years ago Since the war it had increased considerably, and the view of the public had undergone a change

Prof A. DONALD said that, as it happened, the legal and medical aspect coincided He agreed with Dr Fairbairn that the line must be drawn somewhere, and at the purely medical indications that he had mentioned If not, he did not see why the profession should not fall into the extreme attitude that it was merely a question for the woman concerned He had a great admiration for the sex, but in this matter women had no morals whatever, they quite expected *the doctor to pass a sound whenever they had not* been unwell for two or three days Many of the abstract difficulties did not arise in real practice. He had induced many abortions, four-fifths of them for hyperemesis, but he had never failed to convince a woman that it was her duty to go on with her pregnancy in the cases where there was no medical indication The profession still adhered to the line laid down as a tradition for all these years, it would be a great mistake if they once began to depart from it

Summing-up

Lord Justice SALTER, summing up the discussion, said that he looked at the question with the eyes of a lawyer, and viewed in this precise manner, the practical problem appeared to be What is and what ought to be law in this country with regard to the artificial procuring of abortion ?" Every doctor desired that the law should be so framed that his duties as a citizen should never conflict with his duties to his profession Dr Taylor in his "Medical Jurisprudence," headed one section 'Justifiable Abortion," and this section was still retained in the latest edition It began by saying that there was no abortion that was justifiable in law Dr Taylor's view seemed to be that the term "unlawful use of drugs &c was merely a term of abuse, but in his (Lord Salter's) opinion the fact of forbidding unlawful use implied that there was a lawful use A very difficult case might arise if it were found during the pregnancy that one or other parent were suffering from a disease usually inherited He thought the mother should have more say than anybody else but it was going rather far to say that to effect abortion should be lawful in any case where the mother desired it Here was a living thing alive in the mother, in many senses existent already Was her right to cease at the moment of birth ? Had she not an equal right to kill it after it was born ? It was the view of masses of human beings in ancient times that parents had that right He could not see a logical distinction between the parent's right to abort a fœtus and the right to expose the child He had been impressed by Prof McIlroy's phrase that any abortion was homicide If abortion *were ever* sanctioned outside the strictly medical area for economic or social reasons, he would have great fears Even where it was restrained within the medical area, he would fear the growth of a large class of compliant doctors who would be easily persuaded that there were sufficient medical reasons, their presence would be all to the advantage of the rich Some speakers had boggled at the idea of *many* abortions by the same doctor on the same woman, but if the operation was morally justified in a given set of circumstances it was obvious that it was equally justified another time He was quite sure that those who proposed to extend the sanctions for abortion outside purely medical limits would find themselves up against an enormous body of instinctive but very powerful public opinion The early Christian Church had found abortion regarded in the Roman world much as social excess was regarded by our immediate ancestors—undesirable but so common as to call for no great censure The attitude of the infant Church had been most uncompromising and had never since wavered That view, deep down in the hearts of people, would rise up and have enormous force if it were ever proposed to extend the liberty of abortion

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A report of the Discussion on the Treatment of Chronic Non-tuberculous Infection of the Lungs at the meeting of the Combined Sections of Medicine Surgery and Laryngology of the Royal Society of Medicine will be found on p 262

SOCIETY OF MEDICAL OFFICERS OF HEALTH

A MEETING of this Society was held on Jan 21st, Dr E H SNELL the President, in the chair. Dr S MONCKTON COPEMAN, F.R S, from the point of view of the Government department, opened a discussion on

EDUCATION OF THE PUBLIC IN THE PREVENTION OF DISEASE

It had been suggested, he said that the Ministry of Health ought to give more of a lead to the adoption of new methods of prophylaxis against infectious disease. A government however could not usefully take special action in advance of public opinion and its policy was to provide the minimum of direct propaganda while doing all it could to encourage public authorities and voluntary agents to so educate the people that new methods would have a chance of succeeding The Medical Department of the Ministry issued monthly bulletins with abstracts of important foreign literature, and the Publicity Department issued periodical statements to the press. Summaries of knowledge to date were also issued from time to time Much of this output from the Ministry could be regarded as propaganda of considerable interest and importance A good instance of the Ministry's efforts to forward the use of beneficial methods was its action in setting out the Schick method of protection against diphtheria It had responded to numerous requests for assistance from medical officers of health and of public and private schools and much help had been given by the Wellcome Laboratories The Schick test, followed by immunisation of susceptible persons had been carried out on 6000 children and adults none of whom had since contracted diphtheria, though many had been in contact with cases of it It was of great importance to immunise all children at pre-school age so as to avoid the risk of contracting the disease on entering school life but so far this had been attempted only on a very small scale: pioneer work of this kind had been done by Dr. C W Hutt, medical officer of health for Holborn The Ministry was now considering the question of more direct propaganda by means of local conferences which would be attended by members of the staff of its medical department This department should be looked upon as a central bureau of information engaged in investigating and recording epidemiological, statistical and laboratory work in this country and abroad concerning the prevention of infectious disease and supervising the technical work involved in the production of immunity

The Press

Lord RIDDELL said that it was evident from Dr Copeman's remarks that the *Government* was not disposed to take the initiative in educating the public on these matters, its object being, apparently, to get somebody else to do this educating He thought that the press as a whole could not be charged with any disinclination to deal with medical matters If some gigantic scheme of preventive inoculation was contemplated, the Ministry of Health should first formulate its proposals discussion of which by Parliament would focus public attention on them No doubt the services of experts would be available to explain the scheme If medical officers of health supplied the press with interesting copy on vital subjects they could be sure of having what newspaper people called a double top ' The measures involved in the prevention of infectious disease were serious, they implied complete confidence in the efficacy of certain treatment, they meant an interference with the liberty of the individual, and propaganda in their favour might start an agitation against them. Vaccination against small-pox had been of great benefit to the community, but just because it had been made compulsory and some measure of attention had been drawn to it, much opposition to it had been aroused. What was likely to be the reception of a proposal to inoculate all young children? Was the profession as a whole in favour of such preventive measures? He thought it unlikely that the press would try to form public opinion on this matter, but probably the papers would open their columns to a discussion of the subject, provided it was carried on by persons with due qualifications and that they did not fix their remuneration at too high a figure.

The Medical Officer of Health

Dr. C W **HUTT** said that he would favour general immunisation against tuberculosis, enteric, and other diseases. The problem at present centred chiefly around small-pox and diphtheria. He was a firm advocate of personal persuasion in the attempt to gain public sympathy for prophylactic measures. It was encouraging to find Camberwell and Westminster taking up the Schick test for diphtheria. The opposition of the Anti-vaccination League had always to be reckoned with, sometimes the statements issued by that body were grossly wrong. He thought that cinematograph films and wireless could well be brought into the campaign, though admittedly the most powerful agency was the press, especially as, even now, many people felt that if anything appeared in print it must be true.

The Standpoint of the Public.

DEAN INGE, referring to attempts made in the first weeks of the late war to prevent the inoculation of British troops against typhoid, said that in the Boer War there had been between 16,000 and 17,000 deaths from this disease in an army of 200,000. It was not too much to say that if the anti-vaccinist crusade had succeeded in 1914 we should have lost the war. The ignorance of the public remained astounding, though not so bad as 50 years ago. He had only one additional suggestion to make—namely, that the churches should set apart one Sunday in the year—perhaps St Luke's Day—as Health Sunday. On that day the pulpits might be occupied by medical officers of health. The main responsibility in this matter, however, rested with the doctors themselves. In the past they had been too timid, too afraid of medical etiquette, and of public opinion, they had not shown quite the courage they ought to have done. They certainly had been slow in enlightening the public about the nature of certain contagious diseases which were even more serious than small-pox. And he thought the profession might well tell the public a little about the well-established laws of heredity, that it was not good for epileptics or deaf-mutes to marry. Medical men were listened to very patiently and respectfully. The modern man might doubt whether he had a soul, he might forget that he had a mind, but he was acutely aware that he had a body.

The Point of View of the Laboratory Director

Prof J C **LEDINGHAM**, F R S, said that the best advertisement which could be given to a product of research was the assurance that it rested on a solid scientific foundation, that it had no secret corners, and that it had been tested as far as possible on animals, or, as in some instances, on human volunteers. It should then commend itself to the public without the need of any special propaganda. But the public must not try to force the researcher's hands. The value of diphtheria antitoxin had been tested up to the hilt before it was used on patients. The story of tuberculin showed how even a great figure-head could go astray. Koch himself had laid down the conditions which specific therapy should fulfil, but not until his third paper did he state what his substance was, feeling, he said, that physicians would be less prejudiced if they did not know. This illustrated the necessity for the investigator to stick to the rules of the game, however distinguished he might be. Public health would benefit, he thought, if measures were taken on suspicion of an attack of disease, without waiting for definite symptoms to develop. In this country we had been slow to adopt prophylactic measures. In his view, the chief need in propaganda was to have an informed public press. At present it served out from sheer ignorance, what was a mere burlesque of the facts. The burden of the work could well be borne by the various welfare organisations and institutions. After all, vaccination was cheaper than small-pox, and the widespread reduction of incidence following widely used immunisation would be a gain cheaply acquired.

Dr C S **THOMSON** contended that the working man was very amenable to persuasion in these matters. The general practitioner dare not write an article to the press on health subjects, for fear of having his name removed from the Register. Medical officers had already appeared in the pulpit. He thought that films might also be made and shown.

CHELSEA CLINICAL SOCIETY

AT a meeting of this Society held on Jan 8th Dr J D **ROLLESTON**, Vice-President, opened a discussion on the practical results of

Recent Researches in Acute Infectious Diseases

The diseases, he said, in which the most useful results had been obtained from recent research were in order of importance, diphtheria, measles, scarlet fever, and typhus, and these results could be ranged under the headings of diagnosis, prophylaxis, and treatment. As regards diagnosis, the most important discovery in recent years was the Weil-Felix test which occupied as important a position in the diagnosis of typhus fever as the Wassermann reaction in the diagnosis of syphilis. Although the causal agent of scarlet fever was probably a variety of hæmolytic streptococcus and that of measles a green-producing diplococcus, bacteriological methods were not at present available for the clinical diagnosis of these diseases. Personally Dr Rolleston had not found that recent tests had given him any assistance in the diagnosis of scarlet fever, but he admitted that several observers both at home and abroad were inclined to attach considerable diagnostic significance to the Dick test and Schultz-Charlton reactions. From the practical standpoint the most useful results came under the heading of prophylaxis especially as regards diphtheria, measles, and scarlet fever in the order named. Dr Rolleston gave a brief description of the Schick test, active immunisation against diphtheria by toxin-antitoxin, the serum prophylaxis of measles, and immunisation against scarlet fever. In dealing with treatment he remarked that investigation had shown that there were no grounds for regarding alcohol as a cardiac stimulant. The most that could be said for it therapeutically was that it acted as a narcotic and that in adults accustomed to its use it produced a sense of euphoria. In treating children, who formed the great majority of patients suffering from acute infectious diseases there appeared to be no justification for its use.

The most remarkable result of recent research, continued Dr Rolleston, was the application of serum therapy to scarlet fever. His own experience had been limited consisting merely of about 50 cases, for, unlike some enthusiasts, he did not think it necessary to use scarlet fever antitoxin as a routine measure, but reserved it for severe cases. The best results were obtained by the use of a concentrated serum whereby the frequency and severity of serum sickness was reduced to a minimum, while the tendency to faucial ulceration was apparently checked and a striking improvement in the general condition resulted

Reviews and Notices of Books.

CLINICAL METHODS

Finlayson's Clinical Manual Fourth edition Edited by CARL H BROWNING, M D, E. P. CATHCART, M.D. F R S and LEONARD FINDLAY M D D Sc. Revised and augmented by various contributors London: G Bell and Sons Ltd 1926 Pp. 815 18s

Examination of the Patient and Symptomatic Diagnosis By JOHN WATTS MURRAY, M.D. London · Henry Kimpton. 1926 Pp 841 36s

History Taking and Recording By JAMES A. CORSCADEN M D. Associate in Obstetrics and Gynecology, Columbia University New York. New York · Paul B Hoeber Inc. 1926 Pp 78 $1.50

THE great increase in bacteriological and chemical aids to diagnosis during this century brings with it a grave danger that students may come to regard diagnosis as a mechanical science, losing sight of the fact that more frequently it is a philosophic art. The reissue of Dr Finlayson's well-known Clinical Manual for the Study of Medical Cases ' after a lapse of 35 years is thus very welcome the editors have chosen coöperators admirably, and have produced a book which contains much of the *spirit* of the original. Certain portions, indeed, have been retained almost in their entirety, and the late Sir William Gairdner's contribution on the physiognomy of disease is reproduced in its classical form. The only section which is completely new is that by Dr E P. Cathcart on disease of the glands of internal secretion, this is a very well-written, restrained contribution, in excellent keeping with the rest of the book. Laboratory tests are not omitted, but those described are for the most part such as can be carried out in ward side-rooms On the other hand, since a most important duty of the student is to obtain specimens for examination, emphasis has been laid throughout on the precautions to be observed in furnishing such specimens. The section on examination and reporting of medical cases has been well revised by Dr Leonard Findlay · a general scheme is followed by a discussion on the various parts of the "history.' From the point of view of the student, for whom the book is primarily intended, it is perhaps rather long, but it is very readable and is altogether a worthy product of the Glasgow school.

The 800 large pages of Dr Murray's book are concerned only with what he describes as an ' outline for history taking" In a preliminary section he describes a general scheme for eliciting a "history and for the examination of the patient, and then goes on to deal in more detail in a second part with diseases of single organs or of systems of the body He rightly holds that "every first-class diagnosis must be preceded by a thorough history," but a history of such detail and minuteness as Dr. Murray appears to require would seem to be so laborious an undertaking that diagnosis and treatment could hardly be efficiently carried out by the exhausted historian It is stated that the subject matter is gathered from standard works but some curious questions are hardly made clearer by the appended notes. For example, in dealing with diseases of the circulatory system Dr Murray puts the question ' Does the heart skip a beat at intervals of one-half to one and a half minutes? Is the patient in perfect health?" followed by the explanatory note Arrhythmia It may occur in healthy persons ' This is surely too vague. Again the patient is asked, with reference to the liver if he has suffered from diabetes or rickets The reason for this question is given as "look for atrophic cirrhosis. Questions with explanatory comments form the bulk of the book, and vague or inaccurate ones, though only rare in comparison with the immense number in the volume, do detract somewhat from its value. Illustrations are profuse and those in the section on the ductless glands are an excellent collection.

Dr. Corscaden's little book deals briefly with the art of history taking and recording, and while the volume suffers slightly from the fact that the specialty of the author is given too prominent a place it is quite a useful production The discussion of difficult problems in history taking and the devices set out for handling difficult patients are valuable, while the author's differentiation of the two arts—that of eliciting a complete history and that of recording it clearly—will serve to impress the student with the need for taking pains in his work.

PRACTICAL SURGERY OF THE JOSEPH PRICE HOSPITAL.

By JAMES WILLIAM KENNEDY, M D., F.A.C S, Surgeon to the Joseph Price Hospital, Philadelphia Philadelphia. F. A. Davis and Co 1926 Pp 861. $10.

Dr Joseph Price was a surgeon of Philadelphia of great personality who died in 1911. There is no doubt that he was a great teacher, a skilled technician, and a forceful character Dr. James Kennedy was his assistant for 11 years, and was so impressed with the work of his chief that 15 years later he has felt impelled to write a book extolling Dr Price's methods on almost every page For him Joseph Price could do no wrong Time after time the author declares his master to have written the last word on the particular subject he is discussing The book is thus full of sentiment, but in spite of this it contains good material Much of its teaching is provocative, but the obvious sincerity of the author persuades us that, although he may over-rate the virtues of the methods of his late chief there is nearly always in them a sound basis which may not be disregarded. Like many enthusiasts he ascribes views to his opponents, in this case the physiological surgeons," which they do not hold, and then sets out to show how wrong these views are One of his most strongly held tenets is the extraordinary resistance which the inflamed peritoneum offers to manipulation In acute appendicitis he is a strong upholder of freeing all bowel which has formed adhesions. He believes that this eliminates subsequent obstruction and that it is perfectly safe, for absorption of toxic material by the inflamed peritoneum is reduced to a minimum. He believes that it is safe to break down adhesions, even in tuberculous peritonitis, where careful and systematic separation of all adherent coils of bowel is recommended.

The author is a strenuous advocate of carrying out drainage in the inflamed abdomen by means of a gauze pack, but curiously enough, in the section on treatment of the inflamed gall-bladder, we find that his gauze is surrounded by oil-silk to prevent adhesions from taking place between the duodenum and the gall-bladder When discussing cervical erosions Dr. Kennedy stresses the extreme importance of this pathological condition, since he believes it to affect strongly the mentality and general comfort of the patient For a much injured cervix he recommends vaginal hysterectomy.

There are interesting observations scattered through the book For instance, it is declared that if one ovary has been removed because of cystic disease the other ovary is very liable to become cystic if the uterus remains but not if the uterus is removed. In fact, it is said that with the uterus remaining 90 per cent. of such cases return for a second operation on the opposite ovary Again, on page 460, the author declares that the removal of a tuberculous kidney causes a subsidence of a tuberculous lesion beginning in the other kidney In the treatment of carcinoma of the breast the author does not advocate removal of the pectoral muscles since he says that Dr Price pointed out that this procedure did not add to the thoroughness of the removal of the malignancy nor to the prevention of its recurrence. Such a view, although unorthodox, is worth consideration In his practice catgut seems never to be used even in septic cases and neither are gloves We cannot agree with the contention that gloves hamper the work of the intra-abdominal surgeon It is a question of training and the development of sensitiveness of the finger-tips The book is interesting because it illustrates Mr G K Chesterton's contention that the Americans are a foreign nation, it is valuable because it throws doubt on some well-established methods of the present day

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DISEASES OF THE EAR

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THE seventh volume of Denker and Kahler's great handbook forms the second of the three devoted to diseases of the ear It deals entirely with pathology and treatment, and is subdivided into sections on the external ear, middle ear, inner ear, tuberculosis, syphilis, and tumours, including a chapter on tumours of the acoustic nerve This volume, therefore, includes the greater part of the description of ear diseases from the clinical aspect; intracranial complications of ear disease will be discussed in the next volume, together with the subject of deaf-mutism, while methods of examination and testing, as well as general ætiology, have been dealt with in the preceding one The whole subject of non-suppurative middle-ear deafness, apart from otosclerosis, is discussed by A Scheibe under the heading of "Diseases of the Eustachian Tube—Closure of the Tube," and occupies but 18 pages, a much less complete account of an important subject than would be expected in a work of this size and scope As to treatment, the author prefers the Politzer method and rarely employs the Eustachian catheter, the use of which is but very briefly described; treatment with bougies is only mentioned in the statement that the author has no experience of their use With this exception the work is fully up to the very high standard set by the volumes previously published

There is a copious index of subject matter and another of authorities; a list of references to literature follows each chapter, and a full paged table of contents is included at the beginning of the book, these features add much to its value as a work of reference

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BRITISH JOURNAL OF OPHTHALMOLOGY December 1926 —Wajid Ali Khan discusses the Pathogenesis of Microphthalmos, his material being derived from two human and two pig's microphthalmic eyes He attributes the abnormality not to intra-uterine inflammation, as has been suggested, but to an arrest of normal development In this connexion he thinks that fright may be an operative cause One of the cases was that of a child of an unmarried mother, and he suggests that the shock to the nervous system of the mother on first realising her condition about the time when the primary optic vesicles of the fœtus were being formed was the effective cause The suggestion appears to be somewhat fanciful —L G Dodds records an instance of congenital defect of abduction of one eye associated with retraction of the eyeball in adduction Jameson Evans, who recorded one of these cases in 1903,[1] favoured the view that the external rectus in these cases is wholly or partially converted into a fibrous band There may also be a faulty insertion of the muscles Each case must be investigated separately as the appropriate treatment may not be the same for all ——January, 1927 · Crater-like Hole and Coloboma of the Disc associated with Changes at the Macula, by K T A Habertsma, of Delft, Holland The case (illustrated by a coloured plate and charts) differs from the more ordinary cases of "hole" in the disc, in that the vision of the eye was seriously affected by a large scotoma including the macula Presumably the "hole" was caused by an absence of the papillomacular fibres The author suggests an abnormal growth of the retina protruding into this portion of the disc —Bitemporal Contraction of the Visual Field in Pregnancy, by I Ambramowicz, of Vilna The author has reinvestigated this subject, which was brought before the International Congress of Ophthalmology at Washington in 1922, by C E Finlay and Maud Carvill, who found that a large proportion of normal women showed the phenomenon in the later months of pregnancy, they attributed it to enlargement of the pituitary gland Isolated cases have been observed, by J Herbert Fisher[2] and many others The conclusion of Ambramowicz, based on the examination of 81 normal women in the last month of pregnancy, is that the phenomenon cannot be demonstrated in more than about 6 per cent of pregnant women An excellent account of the relations of the pituitary body to vision is to be found in Prof de Schweinitz's Bowman lecture published in the Transactions of the Ophthalmological Society for 1923

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[1] Ophthalmic Review, vol xxii

[2] Brit Jour Ophthal, 1917, i, 599

THE LANCET.

ONDON. SATURDAY, JANUARY 29, 1927.

BORTION LAWFUL AND UNLAWFUL

ECENT discussions have revealed the uncertainty e medical profession as to how far the law permits termination of pregnancies The legal aspect, a speaker at the British Medical Association ing last July, is that induction of abortion is ys against the interests of the State, it is a nal offence, and legislative measures and precau- have been taken to prevent its performance ot in cases of medical necessity That statement e, but it does not appear upon the face of the ces Against the Person Act of 1861—the enact- usually employed in prosecuting abortionists iosoever,' says Section 58 of that Act, "with t to procure the miscarriage of any woman, her she be or be not with child, shall unlawfully nister to her any poison or other noxious ;, or shall unlawfully use any instrument or other ns whatsoever with the like intent, shall be guilty felony, and, being convicted thereof, shall be le to be kept in penal servitude for life" Except the addition "whether she be or be not with child," se words are 90 years old, for the 1861 Act borrowed m from an Act of 1837 Perhaps if they were enacted again to-day an express proviso would inserted to exempt from criminal liability the y qualified practitioner who terminates a pregnancy the bona fide purpose of preserving the mother n special danger to life or health But, as it stands, law contains no such saving clause, its language ormidable and uncompromising How comes it, n, that such operations are ever otherwise than minal? The answer lies in that word "unlawfully," ich creates the implication that abortion may be rful as well as unlawful

awfulness or unlawfulness may ultimately be a estion for judge and jury But no conviction l follow if the practitioner has acted on bona fide dical grounds, and if no conviction is likely prosecution will be undertaken As, however, practitioner has no express statutory exemption m criminal liability, he may be called upon to ablish his bona fides, therefore, he is well-advised emember that, in Lord RIDDELL's phrase, "secrecy he badge of fraud," to explain to the woman her friends the course he proposes to take, to obtain the confirmation of a second opinion statutory provision of 1861 already quoted is not, ourse, the whole of the law The same section es it felony for a pregnant woman to attempt rocure her own miscarriage, and a succeeding *on makes it a misdemeanour for anyone to supply rocure any poison, instrument, or other means, ving it to be intended for the unlawful procuring niscarriage Quite apart from statutes, to procure abortion of a quick child is stated by COKE others to be a misdemeanour at common law, over, the law of conspiracy has often been 'ssfully invoked to secure the joint conviction woman and her assistants in abortion There is ther issue where an unlawful attempt to procure rriage results in death At one time the judges ded this as clear murder, and visited it with eath sentence Later, the Home Office so frequently commuted the capital sentence, and juries were found so reluctant to convict of this kind of "constructive" murder, that the judges changed their practice They began to tell juries that they *might convict of mere manslaughter unless they* thought the accused must have—or ought to have—contemplated that death or grievous bodily harm was likely to result Here our English law was mitigating its rigours against unlawful abortion, and perhaps unwisely, for the change placed the practised abortionist in a better position than the mere first offender But that is the limit of legal tenderness The offence is difficult to prove, for witnesses are seldom present, the law, therefore, has enlarged the evidence admissible To throw light on the lawfulness or unlawfulness of an operation, to prove the intent with which the noxious thing was administered or the instrument used, the courts have admitted evidence showing that the accused has on previous occasions used similar means with the avowed intent to procure abortion, or that he or she has previously admitted having done the same thing to other women Such evidence of previous incidents—which normally the judges are alert to exclude—was held admissible in an abortion charge in 1906, because it authorised a reasonable inference of systematic conduct In 1922 the courts went further With the subsequent confirmation of the Court of Criminal Appeal, evidence that a doctor administered drugs to one woman with intent to procure abortion was held admissible in support of a charge of having used an instrument upon another woman for the same intent, and vice versa—not to prove thereby that the defendant used the instrument or administered the drug, but to rebut the contention that he did so innocently In 1909 the evidence of a woman employed as a police spy to entrap the accused (and, therefore, alleged by the defence to have instigated the crime) was accepted, and corroboration was held unnecessary Punishment is substantial Lord READING, when Lord Chief Justice in 1916, was asked to reduce a sentence of three years penal servitude upon a convicted abortionist He refused on the ground that it was an offence for which a severe sentence was the only sentence possible "The courts must mark their view of these offences which do not become less frequent as time progresses and may not tend to be less frequent in the future" It will be seen that, in Lord RIDDELL's words, abortion is a risky game When many of these decisions were given, a fully qualified medical practitioner was standing in the dock

The member of an honourable profession who, honestly using his best skill and judgment, acts solely in the medical interests of his patient, is in no danger of prosecution or penal servitude His guiding principle is clear, and if its application is difficult in a particular case, it is the kind of difficulty daily encountered in medical practice, as Earl RUSSELL put it during a recent discussion, the removal of a fœtus is as much a medical question as the removal of a tumour The practitioner must disregard everything except the medical aspect of the case He is not to be persuaded by vague and unexamined pleas of feared ill-health, nor to give way to those who would evade the ordinary inconveniences, discomforts, and risks of child-bearing He is not to degrade his calling or abrogate his judgment by shirking the duty of refusal on the ground that, if he refuses, some other practitioner may be found more pliant He is not to regard the economic consequences nor —with one possible exception—*the social consequences* of childbirth, these considerations will afford him no legal defence The one possible exception of sensitiveness of the finger-tips The book is interesting because it illustrates Mr G K Chesterton's contention that the Americans are a foreign nation, it is valuable because it throws doubt on some well-established methods of the present day

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JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol XXIII October–December —In their paper entitled Investigation of a Case of Henoch's Purpura treated by Splenectomy, Dr Bernard Myers, Dr A Knyvett Gordon, and Mr Rodney Maingot record a case of severe Henoch's purpura in a girl of 6, which had existed for a year During the last ten months of this period continuous bleeding from the kidneys had undermined her strength and a fatal issue seemed imminent All medical treatment failed to stop the hæmaturia Splenectomy, however, was followed by cessation of hæmaturia and improvement in general health Two months after operation the patient seemed to be a normal child, and there had been no recurrence of hæmaturia Pathologically the case is remarkable as being the first example of Henoch's purpura on record in which phagocytic giant cells are described The histological appearances of the excised spleen are illustrated in a coloured plate —In the second part of their paper on Epiloia, Dr T Brushfield and Dr W Wyatt deal with the pathology of the disease They point out that the condition in the brain is one of hypertrophic nodular sclerosis or tuberose sclerosis, which is a congenital lesion characterised by marked hyperplasia of the neuroglia elements which gives rise to tumour-like masses in various parts of the brain Microscopically the condition is a gliosis in connexion with which peculiar giant cells or ganglion cells are observed —Dr Brushfield and Dr Wyatt also contribute a paper on Microcephalic Children, based on observations at the Fountain Mental Hospital They state that the diagnosis of true microcephaly rests on three distinguishing and never-varying features (1) cranial measurements all below normal, (2) fronto-parietal recession with occipital flattening and (3) dwarfism Accessory features are (4) early closure of the anterior fontanelle and all sutures, (5) a pointed ridged vertex, the ridge in marked cases extending down the frontal bone to the glabella, and (6) recession of chin and prominent nose All grades of mental deficiency occur in association with microcephaly, but most of the writers' cases belonged to the low-grade imbecile and idiot groups Both the papers are illustrated by excellent photographs showing the naked-eye and microscopical appearances of the brain in epiloia and the characteristic features of microcephalic children —Dr E C Willcox reports a case of Concurrent Varicella and Herpes Zoster The patient was a boy aged 4 years, in whom a characteristic eruption of herpes zoster on the left side of the chest was followed, four days later, by a generalised eruption of varicella, the lesions of which were scattered over the trunk, face, and scalp, and were also present on the palate, base of the uvula, and buccal mucous membrane Both eruptions were extremely characteristic, and both developed and terminated in the manner commonly seen in the two diseases Comments on the case, with a review of the literature, are appended by Dr J D Rolleston —The abstracts from current literature are devoted to dermatology and syphilis

BRITISH JOURNAL OF OPHTHALMOLOGY December 1926 —Wajid Ali Khan discusses the Pathogenesis of Microphthalmos, his material being derived from two human and two pig's microphthalmic eyes He attributes the abnormality not to intra-uterine inflammation, as has been suggested, but to an arrest of normal development In this connexion he thinks that fright may be an operative cause One of the cases was that of a child of an unmarried mother, and he suggests that the shock to the nervous system of the mother on first realising her condition about the time when the primary optic vesicles of the fœtus were being formed was the effective cause The suggestion appears to be somewhat fanciful —L G Dodds records an instance of congenital defect of abduction of one eye associated with retraction of the eyeball in adduction Jameson Evans, who recorded one of these cases in 1903,[1] favoured the view that the external rectus in these cases is wholly or partially converted into a fibrous band There may also be a faulty insertion of the muscles Each case must be investigated separately as the appropriate treatment may not be the same for all ——January, 1927 Crater-like Hole and Coloboma of the Disc associated with Changes at the Macula, by K T A Habertsma, of Delft, Holland The case (illustrated by a coloured plate and charts) differs from the more ordinary cases of " hole " in the disc, in that the vision of the eye was seriously affected by a large scotoma including the macula Presumably the " hole " was caused by an absence of the papillomacular fibres The author suggests an abnormal growth of the retina protruding into this portion of the disc —Bitemporal Contraction of the Visual Field in Pregnancy, by I Ambramowicz, of Vilna The author has reinvestigated this subject, which was brought before the International Congress of Ophthalmology at Washington in 1922, by C E Finlay and Maud Carvill, who found that a large proportion of normal women showed the phenomenon in the later months of pregnancy, they attributed it to enlargement of the pituitary gland Isolated cases have been observed, by J Herbert Fisher[2] and many others The conclusion of Ambramowicz based on the examination of 81 normal women in the last month of pregnancy, is that the phenomenon cannot be demonstrated in more than about 6 per cent of pregnant women An excellent account of the relations of the pituitary body to vision is to be found in Prof de Schweinitz's Bowman lecture published in the Transactions of the Ophthalmological Society for 1923 the plan "in the present state of public feeling," and remarks that "the suggestion might be more convincing if supported by the results of extensive experience" It appears, however, that only by modifying the virus or the dosage employed in vaccination are we likely to secure assent for the universal protection of infants, and Dr KINLOCH's method, if effective, would so disarm public hostility as to make general vaccination once again practical politics The next, or third, alternative is to abandon universal vaccination altogether in favour of the effective treatment of contacts in the face of an epidemic Present experience in Sheffield goes to show that under a sufficient stimulus the majority of people in an infected area will present themselves for protection, whether contacts or not, but it is likely that even if compulsory vaccination of infants were sacrificed, Parliament would still be unwilling to give power to the Ministry of Health to make vaccination compulsory within "an infected area" Criticism might be lessened, however, if such vaccination aimed at conferring only brief and temporary immunity, and it is theoretically possible to check the progress of an epidemic by using an antigen producing symptoms so far negligible that popular prejudice would soon fade away Nor should it be necessary to give the whole of a threatened population this transient protection Indeed, if they were forced to receive it during one epidemic, they would have a legitimate grievance when a year or two later the public health authorities demanded that they should be vaccinated again The measure would be reserved for contacts only For them, however, it must be compulsory to be effective It may be that we have not yet achieved sufficient accuracy in vaccine standardisation or in measuring individual response to enable us to estimate either the dose or the probable amount and duration of any immunity which might thus be conferred These are matters into which the Departmental Committee now sitting is quite competent to inquire

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[1] Ophthalmic Review, vol xxii

[2] Brit Jour Ophthal, 1917, i, 599

THE PROBLEM OF INFECTIVE ENDOCARDITIS

TWO years ago a Research Fund was initiated,[1] in memory of the late Mr R L St J HARMSWORTH, for the investigation of the problem of ulcerative endocarditis, and a Scientific Committee, consisting of Sir THOMAS HORDER, Sir THOMAS LEWIS, Sir COOPER PERRY, and Dr MERVYN GORDON, was appointed to advise the trustees on the administration of a fund which now exceeds £25,000 in amount On the advice of this committee grants will be made to individual workers in Great Britain or elsewhere on account of contributions to chemical or other research, and the Trust deed contains a provision to the effect that the whole of the capital remaining at any time may be granted to the author of a contribution which is judged to have finally disposed of the present obscurity overlying our knowledge of infective endocarditis, and to have given the medical profession control over the disease Although in many respects knowledge of infective endocarditis in its more intimate details lingers somewhat, it is clear that clinical recognition of the condition has been much commoner in recent years that it was at the beginning of the century At that time it was something of a curiosity, but, as is the case with so many disorders, once attention was directed towards it, evidence was soon obtained that it was of much more frequent occurrence than had been supposed This is particularly true of the subacute form Published accounts of the disease indicate a greater frequency in some parts of the world than others, but this needs confirmation Moreover, clinicians with long experience of cardiac disease have the impression that since the war period there has been a definite increase in the number of cases Trustworthy evidence on this point is, however, difficult to obtain Despite the increase and greater dissemination of knowledge of the varied clinical appearances, hospital experience suggests that a diagnosis of the condition is usually made only some considerable time after its inception The insidious nature of its onset is a partial explanation of this and the result of it is that little is known of the very early stages of the condition, the time at which the source of the infecting agent might presumably be sought with the greatest hope of success Much information might be gathered by study of the bacteriology of the blood stream in the course of unexplained febrile conditions occurring in patients suffering from cardiac disease In earlier times the isolation of organisms from the blood was considered a sine qua non in making a diagnosis Now it is becoming increasingly clear that in many cases this cannot be done Considerations of technique do not explain the failures recorded There are cases in which the clinical diagnosis is unmistakable, in which the post-mortem findings are typical, but which at no time during the period of observation reveal evidence of bacteriæmia The transition from one stage to the other has been observed in a few instances but much more information upon this phase of the disease is required. The prognosis is always extremely bad but evidence is gradually accumulating to show that recoveries do occasionally occur Specimens are from time to time seen which suggest very strongly that there has been a bacterial infection of the valves at some time or other which has completely healed, leaving a damaged valve It is quite possible that the cases usually seen are merely a special selection of bad infections There may be much milder cases which recover without going on to this serious disorder This is suggested by certain recorded observations, but can only be settled by further work on the bacteriology of the blood in febrile conditions

The acute fulminating infections are usually due to one of the pyogenic organisms But the distinction between acute and subacute is in this connexion quite arbitrary, and it would not be surprising to find a case of the latter variety due to one of the more highly pathogenic organisms A few cases of subacute endocarditis are caused by Pfeiffer's influenza bacillus but the great majority (90–95 per cent) are due to streptococci indistinguishable from those found in the normal mouth and upper respiratory tract Occasionally one is found which appears to have come from the intestine These streptococci are not hæmolytic, and have very little pathogenic activity for laboratory animals Further, they are not usually considered to be important agents in human pathology. although some workers dissent strongly from this view It is probable that they enter the blood stream from some focus in their natural habitat How often such invasion occurs without injury resulting is entirely unknown Experimentally, injections of such organisms may be made without ill-effects in many instances, but occasionally lesions of the valves develop What determines such a localisation is at present a mere matter of conjecture Clinically and experimentally it is known that previous injury of the valve predisposes to infection, and the same has been proved regarding congenital abnormalities How this is brought about and if abnormality of structure is a necessary pre-requisite are questions which remain to be determined It has been suggested that the localisation is due to an elective affinity which the organisms have for the valve tissues , that the tissues are specifically sensitised to the organisms by previous disease or invasion of the blood , that the effect of injury is purely mechanical None of these contentions can be regarded as adequately substantiated The precise relation of the disease to acute rheumatism can be settled only when the cause of the latter is definitely decided The is the case—perhaps more prominent in argument than in actual experience—where a woman is pregnant as the result of a criminal assault forcibly committed upon her against her will This case is clearly distinguishable from those where an unmarried woman is with child as the result of voluntary intercourse There is no legal authority for saying that it is lawful to terminate a pregnancy caused by criminal assault, but, if the practitioner is satisfied of the facts, he can operate with the certainty that juries will be slow to convict and judges slow to punish For the rest he must remember that the procuring of abortion upon insufficient medical grounds is as unlawful now as formerly, though religious inhibitions may seem weaker, and though the frankness of modern speech and thought may suggest a change in the national conscience The question for him in each case is the physical and mental safety of his patient The answer in each case rests, therefore, really with the medical, not with the legal, profession

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[1] THE LANCET, 1924, ii , 764

SMALL-POX OUT OF CONTROL

The epidemic of small-pox in the North of England has now reached a stage at which the spread of the disease cannot be controlled The popular distaste for vaccination is reflected in the attitude of local authorities towards their duties, and in many areas it has become impossible even to ensure that contacts shall be vaccinated or segregated The result has been a long series of associated outbreaks which have proved expensive and inconvenient In one place the disease has been dealt with as though it were deadly; in another it has been disregarded because it is so trivial And at the end of several years it can still be claimed that either of these policies has been justified by events, for it has been shown that small-pox can only be controlled by concerted action, and it has sometimes proved to be hardly worth controlling If, indeed, we could be certain that the disease will remain mild in character, it would probably be wise to let it run its course unchecked, the public could take its choice between vaccination and a disease no worse than chicken-pox, and in either event would gain immunity But it is impossible to feel any such certainty Statements by the medical officer of health for Sheffield and others suggest that it is already becoming more virulent, and the whole policy of the Ministry of Health in demanding that the epidemic should be taken seriously is, of course, based on the possibility of such a change for the worse Dr C V Chapin,[1] having searched without avail for any record in the United States of the derivation of a severe from a mild outbreak, suggests that a sudden change or (speaking in biological terms) mutation of the small-pox germ, occurred in South Africa or Florida 30 years ago But, even so, who is to say that a mutation in the direction of mildness may not be followed sometime by a mutation in the direction of severity ? As Sir Humphry Rolleston recently pointed out at the Medical Society of London, outbreaks of mild small-pox in the past have been frequent, and this should warn us against believing that the virus has undergone a permanent change of heart Mild outbreaks have in the past been succeeded by widespread and virulent epidemics, and the same thing may happen again

Should such an epidemic occur in this country, as is quite likely, the situation would be serious Failure to control small-pox in the North of England has brought the policy of universal pseudo compulsory vaccination of infants into further disrepute, and has given another handle to those societies which make it their business to increase the distaste of the public for this measure. The tenets of these societies are largely academic They object to vaccination on the ground that it is illogical and unpleasant to inoculate the perfect human body with unclean disease It is very doubtful, however, whether this is the aspect of vaccination which deters the bulk of the population from having their children protected More probably it is the idea of possible danger and certain malaise which disturbs the public mind, for it is a mistake to suppose that all the opposition is due to lack of imagination or crankiness Vaccination at the age of six months inflicts an infectious disease on the child at a time when its digestive mechanism is being rapidly modified, and many reasonable people, although convinced that vaccination will prevent small-pox, think that the advantages of immunity do not outweigh the disadvantages of its production Such minor qualms would disappear in face of an epidemic, but there is enough sense in the opinion—when supplemented by the nonsense of the antivaccinists—to make universal and full vaccination of infants (as theoretically enforced by Parliament) impracticable in this country at the present time And there is no settled policy in its stead All that happens is that when an epidemic of small-pox breaks out the medical officer of health does his best to frighten the public into wholesale vaccination, his success depending partly on his personality and partly on whether the disease itself seems dangerous to the people of the district This is an unsatisfactory way of meeting small-pox in a civilised community, and it is time that the alternatives were fully discussed

The first alternative is to let small-pox take its course, offering vaccination to those who prefer it In view of the likelihood of a virulent epidemic sooner or later occurring, to carry out this proposal would hardly be fair to a semi-educated population The second alternative is to modify our methods of vaccinating infants, so that sensible people will have no reason to fear and dislike them This suggestion is discussed by Dr J Parlane Kinloch in his Report on the Health of Aberdeen for 1926 Although, he says, no evidence has been obtained that ordinary vaccination at six months is harmful to the child's future well-being, any immediate disturbance of health can be obviated if parents can be persuaded to adopt vaccination and re-vaccination, as follows[2] —

"In the first place, the child when a week old is vaccinated on the arm with the smallest single site insertion compatible with a successful take Vaccinia developing in this way is extremely mild and causes no discomfort whatsoever to the infant, and no scarring results from this procedure The immunity from small-pox thus secured is, however, of shorter duration than the immunity provided by the full vaccination procedure at the age of 6 months . . and while children thus mildly vaccinated in the first week of life are protected during the pre-school years, revaccination at the school age must be procured if the danger from small-pox is to be avoided This can be achieved by revaccinating with the smallest single site insertion compatible with a successful take, or if revaccination to the extent laid down in the Vaccination Order is now desired it is of no serious import to the healthy child aged 5 years"

Dr A Drury, however, who edits the Supplement in which this extract appears, takes exception to influence of neuroglandular dystonia in producing certain changes in the body temperature during the premenstrual period Having eliminated the possibility of a febrile condition imputable to some form of organic disease in the pelvis or elsewhere, and especially early or latent bacillosis, there remain to be considered other ætiological factors and precisely the secretory functionality of one or more endocrine glands and the disequilibrium between the two antagonistic systems of vegetative life This is, moreover, what has been done by other authors who, occupied with the same argument, and meeting with symptoms of hypersympathismus and manifestations, more or less clear, of increased endocrine functionality, especially thyroid, have described a sympathetic fever, or fever associated with hyperthyroidism The observations of A P Cawadias and Mme Hovelacque may be mentioned in this respect The charts of Dr Avezzu s two cases show a premenstrual rise of temperature of two kinds (1) the monothermic type, the daily oscillations never reaching 0 5 of a degree centigrade, and (2) inverted distribution—i e, the axillary temperature being higher than the oral The former is never met with in any of the great varieties of fevers due to the direct action of a definite microbe or of its pyretogenous toxins. The latter anomaly has been noted by Lucatello in a particular group of subjects with thyroid disturbance of the hypersecretory type, the external axillary figure being greater than the internal oral by two- or three-tenths of a degree centigrade In both the cases described, Marañon's sign—friction of the prethyroid region causing erythema—Bram's test, tolerance to quinine, Goetsch s test, injection of adrenalin causing lowering of the diastolic with increase of the systolic blood pressure, and Porak's test, bradycardia, and glycosuria after injection of pituitrin all these were reacted to in a strongly positive manner To explain the pathogenesis of the increased premenstrual temperature, attention must be drawn to the functionality of the sanguineous glands during the cycle of maturation of the ovary—i e, that there is a displacement of glandular equilibrium such as to cause in every premenstruum physiological phenomena of hyperluteinism and of hyperthyroidism which are substituted for diametrically opposite conditions during the menstrual phase and the first few following days Most physiologists admit that the Graafian follicle ruptures about 12 days after menstruation, and the corpus luteum reaches complete secretory functionality on the seventeenth day, but continuing to increase up to one or two days from the sanguineous flow, at which period its involution begins which is completed eight days after the menstrual period In the case of pregnancy the corpus luteum remains active for a long time and its secretory activity fades only about the third month The hyperthermia therefore, whether premenstrual or gravid, follows on parallel lines the evolution of the corpus luteum and seems to be closely connected with it

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[1] Public Health Reports, Washington, Dec 24th, 1926

[2] Quoted in the Supplement for Public Vaccinators, contained in the Medical Officer for Jan 22nd, 1927

THE DIETARY VALUE OF THE SOY BEAN

FOR the last 2000 years the soy bean has been used in North China for making bean curd, a thick nutritious jelly eaten daily by all classes of the people A vegetable oil is also expressed from it and is widely employed, the refuse serving for cattle-food and manure for sugar plantations About 100 years ago the bean was introduced into England, but no attempt was made to cultivate it and it is only during the present century that its remarkable merits have aroused interest English firms have taken a large part in its export from Manchuria and as long ago as 1911 the amount exported rose to about half a million tons annually In 1910 experiments were begun which demonstrated that the soy bean could be grown throughout South Africa and its cultivation there was strongly advocated [1] It was shown that besides being useful for animals, it could form the basis of substitutes for flour meat, chocolate, macaroni, cheese, and coffee, and a few years later much interest was aroused in this country by an attempt to exploit a soy bean product as "synthetic milk"[2] That from the standpoint of nutrition this attempt was not unjustified is evident from the descriptions and analyses of the bean which we have from time to time published, but it has been found difficult to popularise its use owing to the disagreeable digestive disturbance to which it may give rise Even under the stress of the late war its general adoption was found impossible in Germany In an article which we publish on page 267 Prof T. R. Parsons shows that a new phase has been entered upon, owing to the discovery by Dr Berczeller in Vienna that the obnoxious constituents of soy bean can be removed by special milling and fractional distillation without interfering with the high nutritional value of the resulting meal Prof Parsons bases on these facts a well-considered appeal for an investigation on a large scale, hazarding the opinion that Haberlandt's prescience may yet be realised and the soy bean come to be extensively utilised in the diet of the masses to supply the proteins and fats needed in supplement of the abundant carbohydrate which they obtain from the potato His facts and figures should certainly receive the attention of all who are interested in the feeding of men or animals

MOVING RADIOGRAMS.

APART from its use for purposes of demonstration, it has long been evident that the cinematograph might be of much value for research if continuous pictures illustrating the passage of opaque meals could be obtained Many technical difficulties have stood in the way, direct pictures could not be taken, as the size of the ordinary X ray shadow would necessitate the use of enormous films; the employment of an indirect method, in which ordinary photographs are taken of the image seen on a fluorescent screen presents other difficulties, such as protection of the patient and camera and the securing of a sufficiently bright image For nearly six years Dr Russell J Reynolds has been grappling with these and a score of equally awkward technical difficulties, which he described in full in a communication to the Rontgen Society on Jan 11th We are glad to note that he is now able to secure satisfactory moving pictures of the bony parts, although his apparatus is not yet sufficiently perfected to enable him, we gather, to get serial views of the viscera in action When we consider the advance that has followed the study of the kinetics of the heart as revealed, however imperfectly, by the electrocardiogram, and the change in thought that has occurred since recognition of the fact that the dissecting-room gave an illusory picture of the anatomy of the alimentary canal, it seems clear that if, as the result of Dr Reynolds's researches, we become able to get clear moving pictures of these viscera, great advances in medical physiology and clinical medicine may result Phenomena such as the mass peristalsis of the colon, or the mechanics of the duodenal cap call for considerable elucidation Applied pharmacology may reveal the secrets hidden to-day under the names of vagotonia and sympatheticotonia Experiments have already been made to study the intimate movements of the heart by means of the slow-motion cinematograph, but these and other inquiries are held up by the relatively immense costs We say relatively immense, for it is true that such sums are trivial in comparison with those expended by modern "photo play" producers when seeking some realistic reconstruction of the Tower of Babel or the Burning of Moscow It seems reasonable to hope that in the near future some hero or heroine of the "movies" may divert a portion further interesting feature of the subacute form is the long-continued septicæmia This has been regarded as due to a failure of the patient's eliminating mechanism. So far as can be judged this view is not correct, for the majority of patients have a markedly increased amount of antibodies, and their blood is quite unsuitable for the growth of the organism Others believe that the organisms develop enhanced resistance to the destructive agencies at the patient's command Others again have sought the explanation in the anatomical peculiarities of the lesion which prevent the access of cells to the organisms These then multiply in the vegetation and escape mechanically into the blood, remaining there, without multiplication, until they are removed and destroyed It is well-known that though infarction and embolism are common, suppuration is very rare There is no evidence that treatment on specific lines has any effect on the condition The same may be said of all other methods

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[1] THE LANCET, 1916, i, 168

[2] THE LANCET, 1912, ii, 1095

Infective endocarditis is merely a special case of the localisation of infecting agents A full understanding of it involves consideration of certain problems peculiar to its anatomical situation, thrombosis and vascular injury, and of others of a more general interest, the nature of bacteriæmia, the mechanism of defence against the streptococci, the classification of the streptococci The therapeutic problem is that of an inoperable focus of chronic infection rather than that of a pure bacteriæmia Solution of the problems of infective endocarditis would be a large contribution to pathology, and for its solution search may have to be made in fields far removed from human cardiology, not least perhaps in the realm of comparative pathology The Secretary of the Research Fund is Dr P SEYMOUR PRICE, of 41, Sloane-gardens, London, S W 1, to whom information should be sent Scientific workers and clinicians are invited to communicate with him as to lines of research which they think likely to prove helpful

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THE DANGERS OF GASEOUS ANÆSTHETICS

THE increasing use of chemically active gases as anæsthetic agents should bring home to the administrator the great need of care to avoid the risk of ignition or explosion Nitrogen is such an inert gas that the impression has got abroad that nitrous oxide is also inert, the practitioner having forgotten his early days in the chemical laboratory when a glowing splinter thrust into a cylinder of this gas broke into flame, much as it would have done in oxygen For nitrous oxide contains nearly twice the proportion of oxygen in the atmosphere At the request of the Joint Anæsthetics Committee of the Medical Research Council and the Royal Society of Medicine Prof H B Dixon, F R S, has been conducting a series of researches on the burning of gases in nitrous oxide full details of which have been published in the Proceedings of the Manchester Philosophical and Literary Society (vol lxxi, Dec 10th, 1926), and we are happy to print on another page a short account by the author of his results From this it appears that nitrous oxide is even more active than oxygen itself in supporting the ignition and explosion of such anæsthetic agents as ethylene and propylene The Committee thinks it advisable to warn anæsthetists and the medical profession generally of this fact, ignorance of which might lead to a serious or even fatal explosion

INDEX TO "THE LANCET,"

VOL II, 1926

THE Index and Title-page to Vol II., 1926, which was completed with the issue of Dec 25th, is now ready A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W C 2 Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now

Annotations.

"Ne quid nimis"

PSYCHOLOGICAL EXPERIMENT BY WIRELESS

AN initial difficulty in the collection of data for psychological study is that of obtaining a random and sufficiently large sample of human material An investigator may have access to groups of people in schools, colleges, factories or offices, but a large sample of the public selected without reference to age, sex, social position, education, or occupation, can rarely be made the subject of the simplest investigation Prof T. H Pear has, therefore, been favoured with an almost unique opportunity in the experiment just conducted by him with the aid of the British Broadcasting Corporation, for the only factors involved in the selection of his material were the opportunity to listen and the will and ability to write a short report He arranged that nine speakers should in turn read the same passage—a fragment from "Pickwick Papers" was chosen—and the public were invited to listen to the voices thus broadcast and answer a set of questions about the sex, age, birthplace, profession, and accent of each speaker, and to express a judgment as to whether he or she was likely to be capable of leading others The primary aim was to ascertain whether there is any general accuracy in such conclusions when they are based solely upon the voice, but from the psychological department of Manchester University we may confidently expect other interesting results from the thousands of replies that Prof Pear has certainly received Each reporter is asked to state his name, address, and occupation, and on this basis the replies may give information of philological interest, for the detection of the locality indicated by an accent would, we may expect, vary with the locality of the listeners To some Londoners, as a negative example, the accent imparted to the words of Sam Weller suggested that one speaker was a stranger to the dialect of London, and the positive diagnosis of a specific accent might come with especial frequency from the district where it prevails Besides the direct aim of estimating the validity of judgments based upon the qualities of a voice, we may expect other results to emerge from the statistical examinations of the sex, address, and occupation of the reporters What people show interest in this experiment? Is occupation or station in life correlated with accuracy of judgment? Do men or women make the wildest shots? Perhaps these questions may not be answered, but if the statistical machinery of Manchester University is capable of dealing effectively with the material obtained, we hope to see other interesting results from a mass experiment that would have been impossible before the general use of wireless

THE MENSTRUAL TEMPERATURE CYCLE

VARIATIONS in body temperature dependent on critical periods in females, and especially on menstruation, associated with organic disease and particularly with tuberculosis have been dealt with by various observers In more recent years changes in the endocrine glands have been shown as possible sources of disturbance of thermogenesis, and menstruation, or as it is better called, the ovular cycle, has begun to be considered, independently of any other pathological condition, as the determining cause of excessive thermic variations Excluding all those cases in which hyperthermia could be referred to pathological conditions in some organ or system, the number of clinical observations on subjects showing, during the premenstruum, a temperature above normal have been very limited Dr G Avezzu, of the University of Padua, has published[1] two interesting cases which bear on the subject of the than a mere collection of useful pieces of knowledge, it should rank as an educational influence and become an integral part of a man's life Only when hygiene and ethics go hand in hand can success be achieved; the hardening of the body and its exercise require fortitude and self control, abstinence from alcohol, tobacco, and similar amenities imply a strong sense of responsibility. Dr Vogel makes interesting suggestions as to the part that the clergy should play in the inculcation of hygiene, he considers the close connexion between health and morality to be adequate reason for demanding their intervention in such important problems as the diminution of the birth-rate, abortion, and in the struggle against infectious and venereal disease and alcoholism Anyone who sets out to teach must set a good example, the fact that 10 per cent of the Evangelical clergy are organised abstainers is, in his view, more valuable to the cause of abstinence than many of the lectures delivered on the subject Dr Vogel deals with hygienic teaching in schools and holds that the syllabus of the teacher should include anatomy and physiology as well as hygiene stress being laid on knowledge of function rather than structure

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[1] Il Policlinico, Medical Section, Dec 1st, 1926

"Parents' days" (Elternabende) give the school doctor and teacher an opportunity of instructing the parents in the care of their children Adult instruction in health matters is dealt with even more fully The lecturer should arrange for the audience to be composed of people with common interests, in the same rank of life, with the same standard of education and intelligence Dogmatism is not essential, no harm comes from confessing the limitations of our knowledge so long as the lecturer himself is quite clear as to what is established and what speculative. The lecture should be a compact whole, not a collection of unrelated fact; it should be personal and concrete; to avoid superficiality the scope of the lecture should not be extensive Pictures are helpful but should be carefully chosen and easily followed Dr Vogel warns lecturers against showing too many slides at a lecture; 40–50 are enough for any audience, 12–20 suffice for children Only a few slides difficult to understand, such as statistical slides, should be included He does not approve of a prepared lecture being read out to explain the slides, the explanation of the slides themselves should constitute the lecture, although care should be taken to introduce personal touches; the Dresden Hygiene Museum has prepared discourses on these lines to accompany the sets of slides He has not much use for hygiene films, the dramatic representation often takes place in other spheres of life to that in which the audience lives He instances films on mothercraft which show nurses in well-equipped institutions using a water spray to rinse out feeding bottles, the mother thinking of her humble appliances at home at once decides that proper rinsing of feeding bottles is beyond her capacity Moreover, the scenes pass so quickly that only persons of sharp intelligence can grasp the lesson it is intended to convey A form of propaganda referred to is the Health Calendar, not, so far as we know, used in this country. Social hygiene must be explained by examples taken from life, or by preparations, drawings, or models At the beginning of this century very little suitable material was available in Germany, but the Dresden Hygiene Museum has done much to fill the gap By imparting life and plasticity to anatomical and pathological presentations it has taken away their frightfulness, by emphasising the important, it has done away with the dangers of schematization, by care in fixing the size of the pictures, choosing carefully colours and backgrounds and the character and arrangement of type, placards have been made attractive as well as arresting Lingner, the founder of the Museum paid especial attention to the representation of statistical facts in graphic form, here representations of human figures and articles of different sizes can be made to play a useful part Dr. Vogel notes with pain that the usefulness of museums and exhibitions is limited by the difficulty of getting enough people to visit them A separate division of propaganda must thus be set up for their advertisement

Dr Vogel thus gives a good outline of the progress of health teaching in Germany, including many hints which will be useful to those in other lands The problems of all modern civilised States are much alike, and we may note in passing the inter-urban rivalries An excellent bibliography of the whole of the subject is given by Dr. Vogel; its comprehensiveness emphasises the omission of all reference to the Volkshygienisches Museum at Cologne and its Director Dr Czaplewski

ACUTE THYROIDITIS

Dr H M Clute and Dr L W Smith[1], of the Lahey Clinic and Pathological Department of the Harvard Medical School, give the following statistics to illustrate the extraordinary rarity of acute thyroiditis as compared with acute suppurative inflammatory processes of other glands Hagenbach found only 43 cases among 45,953 medical and surgical admissions to the Basle Clinic during a period of ten years In a recent series of nearly 1200 cases of thyroid disease in the Lahey Clinic there was only one case of frank suppurative pyogenic thyroiditis, one of tuberculous thyroiditis, and five of chronic inflammatory strumitis of the Riedel type In no case seen during 1925 was a clinical diagnosis of acute thyroiditis made. and before that date the writers had seen only four patients in whom this diagnosis was established Only three out of over 3000 thyroid operations in the Lahey Clinic had been done for thyroiditis with abscess formation The rarity of the condition is explained, first, by the thyroid being well encapsulated and not communicating with the pharynx, except when the thyroglossal duct persists, secondly, by its unusually rich lymphatic system, which facilitates free drainage of the gland; and thirdly, by the bactericidal action of the thyroid secretion Although acute thyroiditis may occur in children secondary to various acute infections, it is most frequent in young adults. probably owing to the changes in the physiology of the thyroid gland which accompany active sexual life Infection in the upper or lower respiratory tract such as Vincent's angina, influenza, or pleurisy frequently precedes the onset of acute thyroiditis Cases have been reported as developing during typhoid or paratyphoid infections, but such an occurrence is very uncommon The onset is usually acute and marked by fever, chills, and pain in the throat and neck Difficulty in breathing occurs early and increases rapidly if an abscess forms A hacking cough and a sense of fullness in the neck is present The voice may be hoarse, but complete aphonia is unusual. Dysphagia is frequently present, especially in association with suppuration Symptoms of hyperthyroidism may develop The physical signs are characteristic. Though swelling is not prominent, unilateral or diffuse enlargement of the thyroid can often be detected. The disease runs a benign course, usually lasting six to ten days Abscess formation is very rare in simple thyroiditis, but may occur in from 60 to 70 per cent of goitrous cases Other complications are œdema of the larynx, broncho-pneumonia, and chondritis and perichondritis of the larynx Exophthalmic goitre may develop and subside with the thyroiditis or persist after the acute symptoms have disappeared. Acute thyroiditis must be distinguished from hæmorrhage into a thyroid adenoma, which follows exertion cellulitis of the neck, or isolated perichondritis of the trachea or thyroid cartilages In the absence of abscess formation the prognosis of acute thyroiditis is excellent Healing occurs rapidly and completely and recurrences are rare The treatment is symptomatic On the occurrence of suppuration early incision and drainage under gas-oxygen anæsthesia are indicated.

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[1] Surgery, Gynecology, and Obstetrics, January, 1927

of his or her colossal earnings from entertainment to inquiry—may we say, from therapeutics to research.

A CASE OF RAT-BITE FEVER

Miss G M Herzfeld and Dr T J Mackie[1] have recently described a case of rat-bite fever in a child, 5 years old, who had been bitten on the forehead by a rat a month before admission to hospital Fourteen days after the bite was inflicted the healed wound became inflamed and the cervical glands swollen, but the symptoms subsided under treatment, and the child seemed well until two days before admission, when the forehead became swollen again and the temperature rose to 102° F Four relapses occurred in hospital. Finally, the gradually enlarging cervical glands were excised, and the child was treated with salvarsan and recovered rapidly The interest of the case—apart from the rarity of the disease in this country—lies in the difficulty which was experienced in demonstrating the presence of the causal organism of rat-bite fever, *Spirochæta morsus muris* or (as has been suggested) *Spirillum minus*. The blood during a febrile attack, fluid from the inflamed area around the bite, and the urine were all examined directly by culture and by animal inoculation, without showing the presence of the spirillum It was not until the excised glands were searched that the spiral organisms were found, both in direct films from the glands, stained by Leishman's method, and in the blood of guinea-pigs inoculated with the substance of the gland From the blood cultures made during fever a motile bacillus was isolated, growing abundantly on ordinary media under aerobic conditions and corresponding to *Bacillus fæcalis alkaligenes* This organism, when tested against the patient's serum, was agglutinated in a serum dilution of 1 in 320 ; five days later the titre had risen to 1 in 1280, which indicates that the bacillus was responsible for a definite hæmic infection. This organism was a secondary invader, but owing to the difficulty of demonstrating the spirillum, the true extent of the disease might easily have been overlooked, in which case the bacillus might have been regarded as the causal organism

PERFUMES AND SCENTS

Smell, being one of the earliest evolved of our senses, is connected with some of the deepest of human instincts, and perfumery is one of the most ancient of arts It probably had its origin in the discovery by primitive man that the twigs of certain shrubs or trees imparted an agreeable smell to the smoke of the cave fire, and scents are associated with every religious system of which we have any knowledge To make a present of perfumes was among Eastern people an expression of profound respect The Magi presented the Holy Child with frankincense and myrrh , incense burns in the temples of every faith, and kings are anointed with fragrant oil. Anyone who takes an interest in the subject will find a valuable guide in "Fragrant Flowers,"[2] recently published by an authority on herbs This study is chiefly concerned with the plants and processes used in the present-day manufacture of perfumes, but incidentally it contains some data about the use of perfumery in medicine The antiseptic value of essential oils has been determined in the laboratory by exact experiment, but long before this was done physicians had a profound faith in the medicinal value of strong scents The priests of ancient Greece chewed bay leaves to induce prophecy, and recommended their use in pillows as a hypnotic measure. The strong odour of these leaves was also supposed to protect against infection, and in times of plague the refugees from the country round Rome would congregate in Laurentium, named for its abundance of laurel bushes The action of sunshine on cherry, laurel, clove, fennel, and other aromatic plants is now known to release ozone, and thus an early superstition, like so many others, has the support of recent exact knowledge John Evelyn put forward a scheme which entitles him to rank as a pioneer of the garden city movement He suggested that all low ground near London should be planted out with pinks, lilies, thyme, and other scented plants, intersected by hedges of sweet briar, rosemary, and the like He was a believer in the purifying power of plant odours, and knew nothing about carbon dioxide or ozone, but all authorities on public health to-day agree that parks and gardens are vitally important to the welfare of large towns Mrs Grieve quotes the statement of Ungerer, a leading perfume manufacturer of the last century, that tuberculosis was rare in the flower-growing districts of Southern France, and that workers in perfume laboratories were singularly free from respiratory infections She claims the greatest antiseptic power for thyme and origanum, followed by verbena, cassia, and cinnamon Everyone who has visited the Wellcome Historical Medical Museum knows the pomander-sticks carried by physicians of olden times to protect them from infection The pomander of Tudor times was a little ball of perfumed paste, made with aromatic gums pounded with rose water and blended with wax or apple pulp (whence the name) It was originally carried as a prophylactic against infectious disease, but later became a luxury and gave the jewellers of the period a medium on which to exercise their ingenuity and skill in the construction of pomander boxes Vinaigrettes, a similar invention, gave more wholesome scents than the sachets of synthetic perfume that have superseded them Apart from their antiseptic qualities scents have well-defined effects on the nervous system, as everyone realises who carries the right flowers to a sick-bed or sprays eau-de-cologne on the pillow of an invalid, and there may be room for useful research on these lines

THE TREND OF HEALTH EDUCATION IN GERMANY.

In ancient times the practice of hygiene was inculcated by its propaganda in the form of religious commands, it was part of the life of the people, at the present day, in spite of our greater knowledge, hygiene is not a living educational force among the masses of the people For this probably the sanitarians of last century were responsible, hygienic problems were looked at too much from the physico-chemical standpoint, and sufficient attention was not paid to the fact that man is a living organism No hygienist 20 years ago would have anticipated the scientific interest taken to-day in physical exercise and in bathing in light, air, and water The contrast between the importance attached to various health measures in 30 years is well brought out in the historical introduction to an article contributed by Dr Martin Vogel, the Scientific Director of the Dresden Hygiene Museum to a manual of social hygiene[1] recently published in Germany He compares the first German Hygiene Exhibition held in Berlin in 1882–83 with the 1911 International Hygiene Exhibition at Dresden At Berlin defence against disease was considered entirely from the point of view of disinfection, school hygiene was chiefly concerned with the form of the school desk, there was no material for the instruction of the public in health Thirty years later in Dresden the exhibition was centred round the building dealing with "der Mensch"; new ways especially thought out for the purpose were used to try to bring home to the man in the street the wonders of the human body and to place before him the discoveries of scientific hygiene Dr Vogel holds out that it is not enough to merely give people health rules, for instance, how they should cough; hygiene should be more facture a serum in Europe from the poison of African vipers, which are probably easier to obtain in large quantities than the European reptile

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[1] Edinburgh Medical Journal, October, 1926

[2] Mrs M Grieve, F R H S , and Miss Ella Oswald, F R H S , Chalfont St Peter 2s

[1] Handbuch der Sozialen Hygiene und Gesundheitsfürsorge Edited by A Gottstein, A Schlossman, and L Teleky Vol I Grundlagen und Methoden Berlin Julius Springer 1925 Pp 511 M.30

STRANGEWAYS MEMORIAL

A meeting will be held at the Royal Society of Medicine on Wednesday, Feb 2nd, at 5 P M, in support of an appeal arising out of the premature death of Dr T S P Strangeways, which was recently recorded in The Lancet Dr Strangeways left a widow and seven children, the five youngest of whom are still being educated, and all the circumstances will elicit the deep sympathy not only of his colleagues and workers along his special lines, but through the whole medical profession It is known to many that any part of his income which was not required for household expenses was habitually used by him to assist the Research Hospital at Cambridge, he could never divorce personal needs from those of the work he was passionately engaged upon The immediate position of the family has been met by subscriptions from friends in Cambridge, but a large sum will be required to complete the education of his sons, the eldest of whom is in his second year at Trinity Hall. During the last 30 years a very large number of medical men graduating at Cambridge have been taught by Strangeways the essentials of pathology, and these men in particular may feel that this is an opportunity of expressing their appreciation of his work, but the additions to medical knowledge made by him, as well as his self-effacing enthusiasm, give the family a claim upon all medical men The appeal is now open and cheques should be drawn to Lloyd's Bank, Cambridge, and crossed "c/a Strangeways Memorial Fund" They may be sent to Mr G F C Gill, manager of the bank, who has kindly consented to take charge of the account, or to Sir Humphry Rolleston, Southfield, Cambridge, to Prof H R Dean, Dr M Donaldson, Dr G P Bidder, Dr L E Shore, or Dr Cobbett We hope that the meeting at the Royal Society of Medicine on Wednesday next will be fully attended by those who sympathise with an appeal that is alike urgent and well justified

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Sir Ernest Hodder-Williams's condition indicates that during the past week he has made satisfactory progress

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Comdrs J C Bringan and G B Scott are placed on the Retd List with the rank of Surg Capt

Surg Lt.-Comdr H C A Tandy-Cannon is placed on the Emergency List

Surg Lt (D) E G Adams to be Surg Lt -Comdr (D)

T Prentice, P H Deeny, C R Boland, and G Rorison to be Surg Lts

ROYAL ARMY MEDICAL CORPS

Capts W C Hartgill, J H Baird (Prov), and F Harris (Prov) to be Majs

ARMY DENTAL CORPS

Maj J G Worsley (Temp Sqdn Leader, R A.F) retires

Temp Capt W A Cowden, Dental Surg , Gen List, to be Capt

TERRITORIAL ARMY

Lt -Col J W Kemp to be Bt Col

2nd Lt. W L Kinnear, late 4th/5th Bn Black Watch, to be Lt

Capts R D Cran and R A Lennie to be Majs

Lt J F Fraser, from the Gen List, T A., to be Lt with precedence and to be supern. for serv with the Med Unit, Aberdeen Univ Contgt Sen Div , O T C

R A M Scott to be Lt

ROYAL AIR FORCE

The undermentioned are granted short service commissions as Flying Officers, for three years on the active list J E Foran and M O'Regan

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCVIII —TREATMENT OF UNUNITED FRACTURES

I General Principles *

In recent years much light has been thrown on the processes of bone repair both by animal experiment and also by practical experience with the mass of bone injuries and ununited fractures left in the wake of the Great War Now, too, the increasing frequency of street accidents makes the subject of the treatment of ununited fractures one of growing importance

As in many other branches of surgery, the most effective and desirable form of treatment is preventive Moreover, the treatment of each individual case is so much guided by the factors causing the non-union that it is necessary to survey briefly the common causes of the condition before discussing the relative values of different methods of treatment

Before proceeding to the operative treatment of a case of ununited fracture, it is important to diagnose the cause of the non-union, since if this is not merely a mechanical one which can be eliminated at the operation the same factors will continue to act and will almost certainly mar the final result

Causes of Failure to Unite

General causes of non-union include conditions which lower the bodily vitality in any way—e g , acute illness , chronic diseases like nephritis and tabes , other conditions which directly upset the calcium metabolism of the body, such as the various types of fragilitas ossium, scurvy, and rickets , various obscure diseases of the ductless glands , and old age in which the processes of decalcification normally outrun those of ossification

Local abnormalities of the bone such as the presence of a tumour or a cyst, which may itself have been the original cause of the fracture, can usually be diagnosed by X rays, and should always be suspected when a fracture occurs after very slight violence

Other local causes are usually *mechanical*, such as the interposition of muscle or periosteum between the bone-ends, and if such are known to exist, or are strongly suggested by the X rays, operation should not be delayed Another local complication is *injury to the nutrient artery*, and recent experiments on animals suggest that this plays an important part in the production of the non-union

In the treatment of fractures it must always be remembered that bone is a living, varying structure, not constant in shape and density like the leg of a table Every bone in the body is the constant subject of a double process—i e , simultaneous destruction and reconstruction The balance of these two processes is influenced by age, disease, and accident In children the constructive process predominates, giving increase in length, width, and density to the bones In old age the destructive phase is the prominent one, so that the bones become more porous and brittle It is evident, therefore, that fractures in children are likely to be followed by rapid union, but there is a danger of excessive callus formation, which may interfere mechanically with neighbouring joints in the fractures of old age, on the contrary, union is likely to be delayed, but the vigorous manipulations that stimulate it can be resorted to without fear of inducing excess of callus

With regard to the function of the periosteum, it seems to be generally agreed now, after much swinging of the pendulum, that the fibrous layer acts as a limiting membrane, to keep the bone-forming elements within due limits , while on the other hand, some of the most active of these cells are to be found just under the membrane, on the surface of the bone Accordingly, when the periosteum is torn there is a risk of the formation of exuberant spurs of bone , but if it gets between the bone-ends at seat of fracture it may so check new-bone formation as to cause non-union This is a very frequent finding with transverse fracture of the patella

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* The Treatment of Ununited Fractures—II Special Fractures —by Miss Forrester Brown, will appear next week

TROPICAL MEDICINE IN THE FAR EAST.

If a bulky volume be any index of a successful meeting, then the Sixth Congress of the Far Eastern Association of Tropical Medicine must have transcended all its predecessors In the 1197 pages of its transactions[1] is contained a variety of pabulum to suit the most catholic of tastes There are no less than 149 original contributions, and the subjects range from tatooing and dentistry to elaborate biochemical and metabolic studies The Congress was inaugurated with an eloquent address by the Prime Minister of Japan, Viscount Takaaki Kato, followed by Prof Shibasaburo Kitasato, whose name is familiar throughout the medical world Appropriately enough, the subject of beriberi and nutritional diseases occupy quite one quarter of the volume, and it is a matter of very considerable ecological interest that undoubted pellagra has been recorded in Japan by Dr Minoru Itoh There are many papers of helminthological interest, such as studies on clonorchis infection, on the lung-fluke (paragonimus), by H Kobayashi, hookworm infestation among Japanese immigrants and residents, the pathology of *Schistosomum spindale* by Dr N H Fairley and Lieut-Col F P Mackie, and a differential table of 17 species of schistosomes, by B Tanabe, which affords, for the first time, an accurate synopsis of the subject Anthropology has not been neglected, for there are studies of the racial indices and characteristics of the aboriginal Ainu and other folk from Saghalien and China The great majority of the contributions are written in English or German languages, though there are a few from Indochina in French The secretaries of this meeting, Dr S Hata and Dr Y Miyagawa, are to be congratulated on the efficient manner in which they have completed their unenviable task in collecting this heterogeneous matter into one volume, the printing and binding of which leave nothing to be desired

THE GENESIS OF GASTRIC PAIN

The common association between gastric and duodenal ulcer and high concentrations of hydrochloric acid in the stomach is too well-known to require comment, but the actual part played by the acid in the genesis of gastric pain is not yet fully understood On the one hand, the word hyperchlorhydria reminds us that to a great many physicians some excess of acid in the stomach may by itself be the explanation of unusual symptoms, on the other hand, the work of A F Hurst and others, and of Izod Bennett and others, teaches us that not only does the introduction of strong acid into the normal stomach not induce pain, but that when a large number of normal stomachs are examined cases are not infrequently encountered in which the normal acidity is fully as high as that met with in disease The subject of the mechanism of pain in gastric and in duodenal ulcer has recently been further investigated by Dr W L Palmer,[2] who has introduced acids and other chemical irritants into the stomachs of patients suffering from peptic ulceration With normal men he found that the introduction of 0 5 per cent hydrochloric acid solution caused either no sensation at all, or at most one of slight epigastric burning In patients suffering from gastric or duodenal ulcer, on the other hand, such injections led to the immediate occurrence of pain which the subjects described as indistinguishable from their normal pains The fluids used for such injections were of interesting variety Sometimes the patient's own acid stomach contents were removed, their reinjection subsequently producing typical pain, in other cases solutions of hydrochloric or sulphuric acid were employed with similar effects Sodium hydroxide in tenth-normal solution produced similar pain, the symptoms in both acid and alkali experiments disappearing when the stomach had by secretion or regurgitation reduced the strength of the exciting chemical to something approaching normality Some of the patients were seen at periods when they were without symptoms, and it was found that in these circumstances the introduction of acid provided no sensory response In general, Dr Palmer concludes that the gastric acid acts as a true chemical irritant to the pain-producing mechanism, the variable factors on which the production of pain depends being (1) the sensitiveness of the pain-producing mechanism, (2) the concentration of the acid, (3) the amount of acid used (4) time (5) the rate of emptying of the stomach, and (6) the rate and amount of duodenal regurgitation These experiments seem to produce confirmatory evidence in favour of the view that, whilst the gastric hydrochloric acid is normally responsible for the excitation of pain in gastric ulcer, it is necessary for an ulcer or other pain-producing factor to be present before this symptom can be aroused The term hyperchlorhydria is, in short, misleading, and should disappear from diagnostic nomenclature In this connexion it is interesting to note Prof M T Finney's statement in the discussion reported on page 228 that the action of gastric juice does not prevent the rapid healing of artificially produced defects so long as there is no interference with the blood-supply

ANTI-VIPER SERUM

The serum treatment of snakebite is now well established in India, South America, and other countries where deadly snakes are common, but although there are a fair number of casualties every year from the bites of vipers in Europe, little has been done to provide an efficient seral antidote The demand for it may be small, inasmuch as only a small proportion of viper bites are fatal, but the great hindrance to its production lies in the fact that, vipers being much smaller than cobras and rattlesnakes it is difficult to obtain sufficient venom for practical purposes Colonel M L Crimmins[1] states that it takes as many as 200 rattlers to give 60 c cm of venom The only European source of anti-viper serum at present is Prof Calmette's laboratory at the Pasteur Institute, where the poison used is that of *Vipera aspis*, but Prof R Kraus, of Vienna, has recently demonstrated that the antidote need not be rigidly specific[2] He has experimented with two other sera besides that of Calmette, one prepared from the blood of animals inoculated with the poison of *Lachesis jararaca*, and another taken from blood rendered immune to the mixed poison of several South American vipers He found that the first of these would not only neutralise the poison of *Vipera aspis* when mixed with it but was as effective as Calmette's serum when injected separately into an inoculated animal He points out, however, that this serum contains two separate antitoxins, which have similar properties in vitro but not in vivo—a discrepancy which has been already remarked on by workers on antidiphtheric and antidysenteric sera The antilachesis preparation would neutralise a dose (0 03 mg) of aspis poison sufficient to kill a normal guinea-pig in 1–3 hours, and should therefore, Prof Kraus considers, be effective on human subjects suffering from the bites of European vipers The second preparation, which has the formidable name of "Vital Brazil polyvalent anti-Bothrops," proved as efficient as Calmette's serum, 1 c cm saving guinea-pigs after a dose of 0 025 mg of aspis poison, and 3 c cm after a dose of 0 05 mg—a control animal dying in one hour from the effects of 0 025 mg While Prof Kraus's experiments thus indicate a second existing source of efficient anti-viper serum, it would be inconvenient for clinicians to rely on a South American remedy, and it is to be hoped that further experiments will be made nearer home It might, for instance, be possible to manu-

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[1] Far Eastern Association of Tropical Medicine, Transactions of the Sixth Congress, Tokyo Kyorinsha Medical Publishing Co 1925 Vol I Pp 1197

[2] Arch Int Med, 1926, xxxviii, 694

[1] Jour Amer Med Assoc, Nov 13th, 1926

[2] Wiener Klin Woch, 1926, lii, 1514

Special Articles.

ON THE IGNITION-POINTS OF GASES IN NITROUS OXIDE

By H B Dixon, C B E, D Sc F R S,
Hon Professor of Chemistry in the University of Manchester

At the request of the Anæsthetics Committee of the Medical Research Council and the Royal Society of Medicine, I have made experiments on the ignition-points of certain gases when introduced into an atmosphere of nitrous oxide, and have compared such ignitions with those of the same gases in air and in oxygen The two gases, ethylene and propylene are of special interest medically on account of their proposed use in producing anæsthesia, and of the great violence with which these gases may explode when mixed with oxygen or air, or with other supporters of combustion such as nitrous oxide

On consulting the literature of the subject it was surprising to find how little the flames of gases in nitrous oxide had been studied Joseph Priestley, when he discovered the gas in 1776—calling it 'Dephlogisticated Nitrous Air"—describes a candle as burning in the gas with a much enlarged flame, sometimes twice as large as it is naturally, and sometimes not less than five or six times larger" Humphry Davy also observed the increase in size of the candle-flame when plunged into the gas He seems to have formed the opinion that the heat of the burning body first decomposed the nitrous oxide, and that the combustion was the result of a direct union with the liberated oxygen "Inflammable bodies in general," he writes, "require for their combustion in nitrous oxide much higher temperatures than those at which they burn in air or in oxygen" Most modern writers appear to have followed Davy's opinion, but our experiments are not in accord with this view All the gases tested in our apparatus have *lower* ignition-points in nitrous oxide than in oxygen, and these ignition-points are found at temperatures below that at which the thermal decomposition of nitrous oxide is appreciable

Hydrogen

As the burning of hydrogen in oxygen is probably one of the simplest of the "flame" reactions initiated at a definite temperature, it was natural to start the investigation of flames in nitrous oxide with that of hydrogen

On bringing an atmosphere of nitrous oxide round a small jet of hydrogen which is burning in air with a non-luminous flame, the change observed in the character of the flame is most remarkable · the diameter of the flame is doubled, while its height is multiplied by five The central core (of a pale apricot colour) becomes luminous, and the spectrum given by it appears to be continuous from red to violet

In the following determinations a steady flow of nitrous oxide was passed upwards through a large cylinder, while a jet of hydrogen was introduced from time to time from a narrow central tube opening in the middle of the cylinder The lags between the moment of contact of the two gases and the appearance of the flame were noted, as the temperature of the furnace rises the interval ("lag") between the issue of the gas and its ignition gradually decreases until this becomes half a second, the current is then reduced and the temperature allowed to fall slowly A second series of observations are then made while the "lag" gradually increases The mean of the ascending and descending readings for each lag is taken as the ignition-point for that lag The two series of readings (with rising and falling temperatures) were usually repeated five or six times and the average of all the readings taken

Experiments were made at pressures varying from 1000 mm pressure down to 150 mm , the *averages* of the readings are given in Table I and (for comparison) the averages found for the ignition-points of hydrogen in oxygen taken from the curves at the corresponding pressures

Table I —*Ignition-points of Hydrogen in Nitrous Oxide and in Oxygen at Different Pressures*

Pressure	1000 mm		760 mm		550 mm		400 mm		250 mm		150 mm	
Atmosphere	N_2O	O_2	N_2O	O_2	N_2O	O_2	N_2O	O_2	N_2O	O_2	N_2O	O_2
Lag—												
½ in	594°	627°	597°	625°	572°	611°	549°	591°	524°	563°	504°	533°
1 in	587	620	588	618	562	604	540	585	518	55[illegible]	497	531
2 in			577	606	554	598	534	575	513	552	491	528
3 in			571	596	548	587	530	569	509	550	487	526
5 in			562	588	543	578	526	566	505	548	484	—

It is evident from these figures that the ignition of hydrogen in nitrous oxide at different pressures follows the same general rule that governs the ignition of hydrogen and other gases in oxygen and in air There is a crucial pressure—about that of the atmosphere—above and below which the ignition-point falls In every case the ignition-point of hydrogen in nitrous oxide is *lower* than in oxygen under the corresponding conditions

Ethylene and Propylene

Both ethylene and propylene burn in nitrous oxide with an enlarged flame having an intensely luminous central zone, they also form with nitrous oxide highly explosive gas mixtures The ignition-points of these gases were determined in the same way by bringing them into the concentric-tube apparatus filled with nitrous oxide In Tables II and III are given the average of the readings made at different pressures compared with those found for the same gases in oxygen under the same conditions

Table II —*Ignition-points of Ethylene in Nitrous Oxide and in Oxygen at Different Pressures*

Pressure	760 mm		550 mm		400 mm		250 mm		150 mm	
Atmosphere	N_2O	O_2	N_2O	O_2	N_2O	O	N_2O	O_2	N_2O	O_2
Lag—										
½ in	592°	604°	605°	624°	605°	660°	592°	650°	578°	617°
1 in	572	593	584	613	584	646	572	634	560	600
2 in	529	584	554	601	548	625	—	614	—	580

The crucial pressure for ethylene in nitrous oxide is seen to be about 500 mm. , at this pressure ethylene ignites within half a second at 605° C At the atmospheric pressure ethylene ignites rapidly at 592° C , which is only 14° C below the ignition-point in oxygen , but when the mingling gases are in contact with a heated surface the difference between the ignition-points is more marked Under the same conditions ethylene ignites at a lower temperature in nitrous oxide than in oxygen but at low pressures the ethylene fails to ignite when the lag exceeds one second

The ethylene used in these experiments was mainly that prepared and condensed in steel cylinders by the British Oxygen Company This gas contains a very small amount of impurity (chiefly nitrogen), but gave the same ignition-points as that prepared and purified in the laboratory

The propylene used was prepared in the laboratory both from normal propyl and from isopropyl alcohol In each case ethers were formed in considerable quantity, and had to be condensed and washed from the gas When the propylene was tested in the concentric-tube apparatus it ignited at ordinary where a fringe from the quadriceps tendon and attached periosteum may hang down between the fragments

The Distinction between Non-union and Delayed Union

Before undertaking an operation it is desirable to be sure that one is dealing with true non-union, not merely *delayed union* This distinction is not merely one of time, for in the absence of mechanical hindrances a fracture which has been inert for months may suddenly unite

In the doubtful case, after all the causes, local and general, referred to above have been excluded, and measures have been taken to raise the general health of the body, it is wise to apply local stimulation to the bone-ends by such means as heavy massage, use of the limb, with just sufficient splinting to guard against gross displacement—e g, for the lower limb walking in the Thomas calliper—and finally, hammering the bone-ends through the soft parts, as recommended by Hugh Owen Thomas It may also be useful to apply intermittent congestion by rubber bandages round the limb above and below the fracture Progress should be controlled every few weeks by X ray examination, when it should be remembered that, in the early stages of repair, callus which will give ultimate good union may contain too little calcium for it to be easily demonstrable on the skiagram The progress shown by X rays will appear much slower than it is actually, so that most reliance must be placed on clinical signs

Conversely, a fracture may appear in the skiagram to be united, when there is merely interlock of irregular bone-ends, which will be found at operation to be sealed off from each other by a thin sheet of fibrous tissue Such a fracture may give good function for a time, but this tends to diminish, while the limb tires more and more easily, and the bone becomes the seat of a chronic ache It is sometimes hard to distinguish the deep tenderness in such a case from the tenderness of active callus, one of its most valuable signs If mobility of the fractured ends persists with a total absence of tenderness, a true non-union can be diagnosed with almost complete certainty

These points in diagnosis have been stressed at some length, because, unless they are appreciated, many unnecessary and some unsuccessful operations will be performed A bone operation is never to be undertaken lightly, and certainly not unless strict asepsis can be guaranteed at the operation and efficient nursing afterwards This does not mean that such operations cannot be done in the most remote highland cottage, since asepsis depends on the surgeon and the nurses more than on external conditions, nevertheless, the surgeon for whom conditions are not favourable will be wise to give his border-line cases the benefit of conservative measures first for a considerable time

Operative Technique

It will be clear from what has already been said that the first essential to the success of the operation is a radical clearing of the bone-ends from scar tissue and free opening up of the medullary cavity, whenever possible, by cutting away all the sclerosed bone from each end Where sclerosis extends too far in each direction to allow of this, multiple tunnels may be drilled up the shaft till free bleeding occurs from them In a fracture of the humerus, or of both bones of the forearm, it is better to shorten the limb by sacrificing a little of the length of the bone in order to get vascular bone end to end, rather than to leave in contact two pieces that look like ivory, for these would never unite In the lower limb sacrifice of length is not lightly to be undertaken, but occasionally amounts up to 1 inch are justifiable In the forearm, if the radius alone is ununited, as it is the key bone for the function of the hand, it is often justifiable to shorten the ulna, so as to allow end-to-end union, rather than to use a bridge graft, more especially if there is extensive scarring of the soft parts, which would not provide a suitable bed for a graft

The use of *mechanical accessories* as a further stage in the operation is a complicated subject, though the principles involved are simple If it is remembered that a bone is a living tissue, not an inert strut, then it will be recognised that many of the devices of the carpenter and the blacksmith, which may be admirable for the repair of wood and metal, may yet be quite ineffective for human bone, conversely, a type of joinery which would disgrace a carpenter may give excellent surgical results Thus all forms of metal attachments have a tendency to cause atrophy of the bone in their neighbourhood, so that, however firm their hold at the operation, unless they are rapidly supported by living callus between the bone-ends they will be unable to resist deforming forces such as the body-weight If they are applied so as to lie in, or just on the bone-ends, they may even inhibit the production of this essential callus, and so defeat the very object for which they were used It is well known that the association of the slightest infection with such foreign material has a most injurious effect on tissues which might be able to cope with the infection alone No surgeon can guarantee that in any fracture which has been compound his manipulations may not light up an infection, which had become quiescent, for such infections may remain latent for years in bone Although the preliminary injection of antitoxin—e g, antistreptococcal and antitetanic, in these cases is desirable, it cannot be made specific for every possible infection For all these reasons metal should be used as rarely as possible, and should be removed as soon as its work is done this latter recommendation is now agreed to even by most of the enthusiasts for plating In the case of small fragments like the internal condyle of the humerus, which are difficult to keep in place after reduction, Stiles's method is useful—i e. the use of a long nail, passed right through the skin, kept in sterile dressings, and removed at the end of three weeks

Even autogenous bone-grafts are not exempt from some of the objections referred to in connexion with metal plates Modern research on this subject suggests that bone-grafts act chiefly as a scaffold for the osteoblasts of the body to travel along in laying their new bricks, the graft being progressively removed by a process too subtle to be followed in skiagrams. Therefore a very dense graft, such as one from the crest of the tibia, acts almost as a foreign body and one difficult to remove, on the other hand, if osteoclasis happens to outrun osteogenesis, even the heaviest graft may break just at the site of the original non-union which it was supposed to cure It is true that union may occur in such a broken graft, but the callus is seldom abundant For these reasons it must not be thought that the use of a metal plate or a bone-graft eliminates the need for a certain amount of external splinting and the usual measures of after-treatment, such as massage and controlled movements Some fractured bones can be trusted without a splint, even in the absence of a graft or plate, but those which require support normally will require it equally after a plastic operation

For the fixation of the graft itself usually strong catgut sutures (Nos 2 or 3 iodine-tannic catgut) through the periosteal sheath are sufficient Sometimes it is possible to wedge the graft so firmly into a gutter in the fractured bone that no sutures at all are required The intramedullary peg-graft has been given up almost entirely, even by those who were at one time its enthusiastic advocates, because it was found not to allow sufficient callus formation owing to blockage of the vascular medullary cavity

Briefly summarised, the principles of treatment common to all cases are —

1 Exclusion of all the causes of non-union, due to the *general state* of the patient's health, with appropriate treatment for any that are found

2 Exclusion of all local causes due to pathological conditions of the bone, such as *tumours* and *cysts* or if these are found, radical removal with restitution of the bone by some form of bone-grafting operation.

3 Careful and thorough treatment of any local *sepsis* in compound fractures with early removal of definite sequestra after careful study of radiographs in two planes, so that none may be missed

4 Open operation when some *mechanical obstruction* to union is known to exist, or after a reasonable time has been given to conservative measures, when serial X rays show no evidence of callus and clinical examination confirms the diagnosis At the operation free opening up of the medullary cavity each end securing wide surfaces of contact of raw bone if necessary with the assistance of an autogenous graft

5 Adequate external *splintage* after operation and *physiotherapy* at an early date

M F FORRESTER-BROWN, M S, M D Lond

Surgeon, Bath, Somerset, and Wilts Central
Children's Orthopædic Hospital

equally valuable, is one part of permanganate of potash to five thousand parts of warm water.

Masks.—The temporary use of masks by those who are attending patients may be occasionally desirable, but for general purposes they are not recommended. By hindering the free circulation of air through the nasal passages they cause turgescence and œdema of the mucosæ and possibly increase the liability of infection.

Vaccines.—No vaccine is yet available which will ward off an attack of the disease, but there is evidence that the use of suitable vaccines may protect against complications by secondary infection, especially those of the pneumococcus and streptococcus. No drug has been proved to exert any specific influence as a preventive of influenza.

Needless Exposure.—Most people are able to avoid at least some occasions of forming part of a crowd or assembly without prejudice to their necessary occupations. To keep away from all places of public resort or social gathering will increase the chances of any citizen of remaining immune.

Precautions when Attacked.—The first symptoms are well-known, and to continue at work after they appear is bad for the patient and may be dangerous to others. Workers obviously ill should at once be sent or taken home. Where influenza is prevalent no person should in any way be penalised for staying away from work for even a slight attack of influenza or any form of feverish cold. On the contrary, he should be expected or required to do so. At the first feeling of illness or rise of temperature the patient should go to bed, keep warm, and seek medical treatment. The doctor, if called in at once, has the opportunity of giving advice or treatment which may forestall the more dangerous complications. Relapses and complications are much less likely to occur if the patient goes to bed at once and remains there *for two or three days after all* fever has gone. Much harm may be done by getting about too early, and many evil consequences are due to *chill and over-exertion* during convalescence.

The early stages of the attack are the most infectious, but the infection may persist throughout the illness, and the patient should be isolated at least until the temperature is normal. If he *cannot* be given a separate room, the head of the bed should, if possible, be screened off. The virus of influenza is easily destroyed and extensive disinfection is unnecessary. All expectoration should be received in an antiseptic solution, and discarded handkerchiefs should be immediately placed in disinfectant or, if of paper, burned. Those attending a patient should avoid inhaling his breath, particularly when he is coughing, sneezing, or talking. The patient himself should turn aside at these times and hold a handkerchief before his mouth. The nurse's hands should be washed at once after contact with the patient or the discharges from his nose and throat.

MEASURES FOR THE LOCAL AUTHORITIES

The imposing of quarantine on persons arriving from abroad has been dismissed as impracticable.

Education.—Most important work can be done by the health authorities by means of leaflets, posters, notices in the press, lectures in the schools, &c., to teach the public the facts about influenza and its gravity and the methods by which they may prevent infection and look after themselves if attacked. No less important is full and exact information about the local facilities which have been provided in the district. Every person should know how to apply for nursing assistance, the special arrangements for the provision of medical attendance, how a household stricken by influenza can apply for “home help”; the positions of public kitchens, creches, &c., the hospitals and ambulance services available for sudden or severe cases.

Notification.—The Ministry has decided not to make influenza a compulsorily notifiable disease. Notification is not likely to improve preventive measures nor to help local authorities to attend to those cases or households which most need assistance. The statistical value of notification is compromised both by the large number of cases not seen by a doctor at all and by the uncertainty with which the term “influenza” is used. Many local authorities will, however, find it useful to make an arrangement with practitioners in their district to notify all cases where nursing, home-help, or institutional treatment is required. Otherwise health visitors may be used to report such cases. Acute influenzal pneumonia is, of course, already notifiable in all districts of England and Wales under the Public Health Regulations.

Protection of Doctors and Nurses.—Authorities do not fully realise the importance of protecting those in attendance on the patient. One of the most tragic features in the last pandemic was the high mortality among hospital staffs, some of which might have been prevented by observing the ordinary precautions applicable to all acute infectious diseases.

Closure of Schools.—In rural and small urban districts where the children have few opportunities of coming in contact with each other outside the school this measure may be useful. It has not much value in densely-populated towns. When day-schools are closed Sunday-schools should be closed as well. Children showing symptoms of influenza should be excluded from school until their heart and lungs have been carefully examined to eliminate latent complications and sequelæ.

Public Places of Entertainment.—The Emergency Regulations issued by the Local Government Board in 1918 gave local authorities power to compel the proprietors of all places of public entertainment to exclude from their performances children of school age, and to provide intervals for the sufficient ventilation and perflation of the building. These regulations were withdrawn in May, 1919, and no sufficient justification has yet been advanced for their reissue.

Other Centres of Overcrowding.—The overcrowding of trains and trams was largely responsible for the spread of the disease in 1918. Permanent through ventilation should be generally advocated and adopted.

Disinfection.—The routine disinfection of premises and articles after use by influenza patients is not called for, but a thorough washing and cleansing of rooms and their contents and of washable articles, bedding, or apparel is desirable. The practice of spraying halls and places of public resort with disinfectants is of little use, and tends to create a false sense of security.

ORGANISATION OF LOCAL MEDICAL SERVICES

Domiciliary Medical and Nursing Service.—In serious epidemics where it is difficult to ensure that every case as it arises shall have early and adequate professional treatment it is often useful to form a “pool” of unattached medical men whose services can be placed at the disposal of practitioners as required. In larger areas part of such a pool may be formed by the health authority's own medical staff. Shortage of nurses is often a more serious problem, but may be combated by subdividing the district into small areas and using one or more nurses in each area as a nucleus for a body of voluntary helpers. Some local authorities in extreme emergencies may have to liberate their maternity and child welfare workers and health visitors for this purpose. Any scheme should include the cooperation of the local district nursing association. Many kinds of home assistance can be arranged with the help of the health visitors, and certain districts may find it desirable to establish emergency kitchens for supplying food to affected households and to form creches for children whose parents are unable to look after them.

Provision of Institutional Treatment.—The local authorities will often find it helpful to use one or more wards of the isolation hospital to supplement the general hospitals and Poor-law infirmaries pressures both in oxygen and in nitrous oxide at a lower temperature than ethylene under the same conditions, but at low pressures the ignitions of propylene in nitrous oxide were sometimes found higher than those of ethylene The ignitions of propylene in nitrous oxide were always lower than in oxygen under the same conditions (Table III)

TABLE III —*Ignition-points of Propylene in Nitrous Oxide and in Oxygen at Different Pressures*

Pressure	760 mm		550 mm		400 mm		250 mm		150 mm	
Atmosphere	N_2O	O_2	N_2O	O_2	N_2O	O_2	N_2O	O_2	N_2O	O_2
Lag—										
½ in	564°	586°	580°	605°	589°	623°	591°	620°	587°	608°
1 in	554	574	569	594	575	608	579	605	575	595

The crucial pressure for propylene is some 200 mm lower than that of ethylene, otherwise the ignitions are governed by the same general rule

The results of these experiments show that Davy's generalisation does not apply to gas mixtures Hydrogen, ethylene, and propylene (and presumably other gases) mixed with nitrous oxide form explosive mixtures more readily ignitable by heat than similar mixtures with oxygen.

INFLUENZA

MEMORANDUM BY MINISTRY OF HEALTH

IN 1919, when the last serious pandemic of influenza swept the world, and 112,000 deaths occurred in England and Wales alone, the Ministry of Health issued to all local sanitary authorities and medical officers of health a memorandum[1] summarising the latest available experience in dealing with the disease In view of the prevalence of influenza in certain countries abroad, the Minister has now circulated a revised edition of this Memorandum [2] The information it contains, although it will not add greatly to the knowledge of most practitioners, has been carefully compiled from reliable sources and forms a useful résumé of our present knowledge of ætiology, prophylaxis, and treatment

SUMMARY OF THE MEMORANDUM

The following is a summary of the Ministry's pronouncement —

Influenza, if uncomplicated, is short and sharp, and recovery is rapid The deaths that it causes are usually due to pulmonary or cardiac complications, and in severe and fatal cases it is generally shown that some organism not specifically associated with influenza has obtained a foothold, probably because of the lowering of the resistance by the influenza virus The commonest complication, especially in the autumn and the spring, is pneumonia The infection passes very rapidly through a community and will spread over a large town in a few weeks Enough is not yet known about the epidemiology to enable a central authority to give timely warning of a serious outbreak Epidemic periods usually end by the waves of prevalence becoming less intense and more widely spread The symptoms of the later cases become more and more confused with those of ordinary catarrhs, which come to be regarded as influenza on comparatively slight evidence, so that the term "acute epidemic influenza" becomes forgotten, and "influenza" is applied to all kinds of indeterminate febrile conditions This tendency makes it so difficult to procure continuous records of the occurrence of true influenza that it is impossible to forecast with any confidence the arrival of a new epidemic wave

Ætiology

Although research is being keenly prosecuted in many countries the nature of the virus of influenza is still unknown No specific form of treatment or prophylaxis exists, nor is it possible to distinguish surely between the autumn and winter outbreaks of "influenzal catarrh" and the pandemic form of 1918 and 1890 On the bacteriological question opinion is still divided between the adherents of Pfeiffer's theory and those who believe that the true causal agent is some other organism, probably a filter-passer, like that which Olitsky and Gates have called *Bacterium pneumosintes* Pfeiffer admits that he cannot explain the remarkable increase in the virulence of the bacillus which must be assumed to occur at the onset of an epidemic, nor has he succeeded in satisfactorily associating his bacillus with the disease by serological methods Although his theory leaves so much to be desired the opposite school have probably a long task before them if they are to accumulate sufficient evidence to win the day

The facts concerning the spread of the disease are, however, fairly well established Infection is conveyed from the sick to the healthy by the secretions of the respiratory surfaces, which are transmitted through the air as a fine spray in coughing, sneezing, and even in loud talking There is a special danger of receiving a massive infection from a person talking loudly within four feet, or coughing or sneezing, without interposing any screen, within ten feet A lesser danger occurs when finer infective particles are carried longer distances by draughts or convection currents The channels of reception are normally the nose and throat, and sometimes the eyes Only a brief exposure is necessary in order to contract infection and the closer the contact the more readily is the virus transmitted It is therefore vitally important to avoid overcrowding of every kind in places of public resort, public conveyances, factories, camps, living rooms, and dormitories When many persons are collected in the same sleeping quarters there is an additional danger of the spread of secondary infections Infection can also be carried to the mouth by a hand soiled with the respiratory secretion of an infected person, or by the use of a soiled handkerchief Temporary overcrowding in trams, trains, omnibuses, and places of entertainment is a more important factor in the spread of an epidemic than is overcrowding in the home, no regular increase of the attack rate has been proved to follow an increase in the number of persons per room in urban tenements.

The period of incubation is about 48 hours, or perhaps somewhat less There is evidence that an attack of influenza may confer some degree of immunity for a few months, but this is by no means invariable

MEASURES OF PERSONAL PROTECTION

In the absence of specific prophylaxis, most members of the community who continue their ordinary work must expect to be exposed to infection, but every citizen can do a great deal both to safeguard himself and to avoid infecting others

Ventilation —Well-ventilated, airy rooms minimise risk by promoting physical well-being Fresh air dilutes and dissipates infective material Draughts and chilling of the body-surface should be avoided

Nutrition —Good nourishing food is desirable. A Memorandum issued in 1919 by the Royal College of Physicians states that alcohol in excess invites disaster, and that everyone should maintain unaltered within the limits of moderation the habits which he has found to keep him in the best health Cod-liver oil raises the immunity

Gargling —The importance of gargling should not be overrated, it is chiefly useful on returning home after exposure to infection in a crowd or from an infected person For gargling one of the most effective antiseptics, and a palatable one, is a full tablespoonful of compound glycerine of thymol to a tumblerful of warm water Cheaper, and perhaps were, at this time, occupied, and the parents were told to keep the child isolated It was later found that the boy, though still in the peeling stage, had been sent on an errand, the parents pleading ignorance of the fact that he was still in an infectious state

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[1] THE LANCET, 1920, i, 41

[2] Memorandum on Influenza Med 11 1927 London H M Stationery Office 2*d*

Silver Poisoning

A verdict of death from pneumonia, with silver poisoning as a contributory factor, was recorded on Jan 10th at an inquest at West Bromwich upon the body of a silver polisher The report of the case in the *West Bromwich Free Press* revealed some difference of opinion among the medical witnesses Dr Downie, resident physician of Hallam Hospital, said that the post-mortem examination showed the cause of death to be meningitis, of which no mention was made on the death certificate, which gave the causes as pneumonia and heart failure He found that the skin of the deceased's neck and face was pigmented and of a bluish colour In reply to the coroner, he is reported to have said that he was of opinion that there was no such thing as silver poisoning, and that the presence of silver in the body would have no harmful effect Dr Mackenzie, of Birmingham University, gave evidence that he had found a silver deposit in certain organs of the body This, he considered, would lower the patient's vitality to such a degree that no insurance company would accept him under a policy He regarded silver poisoning as a contributory cause of death, and denied that the matter was one of speculation The deceased's private medical practitioner, Dr Moore, also expressed the opinion that the patient had suffered from silver poisoning The assistant works manager of the firm which had employed the man said that the firm used only pure silver He stated that he had never heard of silver poisoning, nor had any other employee suffered from pigmentation or showed any bluish colour In recording the verdict as mentioned above, the coroner remarked that it was obvious that cases of silver poisoning were rare, and that the deceased was evidently susceptible. He had been taken ill last May and was in hospital till July, when he was discharged and went to recuperate at Llandudno, his health, however, did not greatly improve, and in December he was again ordered to hospital, suffering from pleurisy and pneumonia In the coroner's opinion the presence of silver deposits accounted for the abnormal period of continuing debility

Disposal of Sewage.

An important action was lately brought by the Attorney-General, on the relation of the corporation of Bradford, asking the Court of Chancery to restrain a wool-combing company from causing or suffering sewage from its works which would interfere with the treatment or utilisation of the city's sewage to flow or pass into the municipal sewers or drains Bradford's problem is peculiar As the centre of the worsted industry it has to cope with a large proportion of the wool-combing and wool-washing of the country Wool-combing operations produce immense quantities of suds, wool-washing removes from the fleeces, with the aid of alkaline substances, a mass of lanoline fat which does not float upon the surface of an effluent and therefore cannot be skimmed off Under a local Act of 1897 the city took power to deal with this refuse The Act imposed penalties upon firms which caused the refuse to enter the sewers, but, by a not unusual compromise, exempted the manufacturers if they had done their best to prevent it and had erected suitable apparatus for the purpose The difficulty of erecting apparatus has been the want of space in many instances The corporation of Bradford has made agreements with several manufacturers and offered to make a similar agreement with the company against which action is now being taken This company, however, asserted its right to throw alkaline matters into the municipal sewers—an assertion which the corporation was bound to contest On the corporation's behalf it was estimated that the defendant company sent 78,000 000 gallons of untreated refuse into the sewers every year, and that the treatment of this volume with sulphuric acid involved an additional amount of 55 tons of acid per week. If the defendants succeeded in their contention, and if other wool-combers also sent their refuse into the sewers untreated, the municipal drainage system would break down, and the sewage purification works (on which 2½ millions had been spent) would be utterly insufficient for the discharge of the corporation's statutory duties After hearing evidence on behalf of the city, the defendant company consented to give an undertaking in the terms of the statement of claim, and submitted to an order to pay the costs of the action There will be an inquiry as to damages The defendant company admitted that it could not claim a prescriptive right to turn its waste into the sewers The case illustrates the modern difficulties of large-scale sewage disposal in trade centres, and shows the kind of problem which the advocates of clean rivers sometimes have to solve

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IRELAND

(FROM OUR OWN CORRESPONDENT)

Appointment of County Medical Officers of Health

THE Department of Local Government and Public Health is meeting with considerable opposition from the local authorities throughout the Irish Free State in regard to the appointment of county medical officers of health

The appointment is compulsory under the Local Government Act (1925), but most of the county health boards are pleading one excuse or another in order to postpone action In face of this position the Department has taken an unusual and courageous step in making a propagandist communication to the Press on the subject of expenditure on public health Last week Mr E P McCarron, the Secretary of the Department, who was accompanied by Dr E F Stephenson, Chief Medical Officer, received representatives of the Press, and told them that the public health organisation was definitely behind modern requirements, owing largely to the fact that the expert local health officers were primarily employed in treating disease

The relatively backward condition of hygienic control in Ireland had placed the country at a commercial disadvantage with such rivals as Denmark and while not as important as the health of the people, the trade aspect of public health administration was important The main essentials in public health administration were (1) Sanitary areas of adequate extent, and (2) trained whole-time health officers to control the sanitary inspectors and to administer the laws and regulations impartially Infection and disease had little relation to arbitrary administrative boundaries, and it was beyond dispute that the best results in the prevention of human suffering and death were achieved in large areas of local control

Experience had shown that however competent a part-time medical practitioner might personally be, he frequently suffered from certain unavoidable disabilities in his capacity as a medical officer of health He was individualistic rather than communal in outlook, and his public duties conflicted with his interest as a private practitioner and often brought him into collision with his fellow practitioners.

The ophthalmic experts of the Department, said Mr McCarron, stated that 690 pensions in the Saorstat were paid to persons whose blindness was attributable to preventable causes The wreckage of human beings caused by crippledom, which was largely preventable, was one of many other unnecessary burdens of the ratepayer, and economy secured at the expense of the people's health was prodigal waste of a national asset Considering that the actual cost of this fundamental service in most country areas was but a fraction of 1*d* in the £, it was difficult to understand the hesitancy of local authorities in making the appointments

They should take care in selecting cases for removal to hospital Patients with pulmonary complications bear removal badly, and should only be moved with the concurrence and supervision of their medical attendant Patients in hospital should be isolated by screening or otherwise, and ambulance and nursing attendants should observe all the precautions proper to the handling of an acutely infectious respiratory disease By the establishment of emergency hospitals in schools, halls, and large unoccupied private houses, the supply of doctors and nurses, particularly the latter, may be considerably economised

THE VITAL STATISTICS OF NEW YORK STATE

New York State has a population of ten and three-quarter millions, of which more than one-half lives in New York City itself It has a complete system of registration of births and deaths, and its experience, for many reasons, is more interesting than that of any other community with a corresponding population

Birth-rates —One reason for this is the mixed character of its population, which is largely foreign born The fertility among different sections of the population is fully set out Thus the average number of children born to those women of the several racial stocks who became mothers in 1923 was for native white women, 2 8, for natives of Poland, 5 0, of Hungary, 4 8, of Italy, 4 6; of Great Britain, 2 9 But these figures do not necessarily relate to completed families and may not be strictly comparable The contrast as to medical attendance at birth between New York State and England is striking In the latter a majority of births are attended by midwives, in New York State there is a medical attendant in over 90 per cent of the total confinements, the lowest proportion being 53 per cent for Poles and 61 per cent for Hungarians

Death-rates —The total death-rate for the State was 13 1 per 1000, a reduction of 28 per cent as compared with 1900 The reduction was equal to one-half at ages under 9, to one-third between 10 and 39 years The success of organised public health work is especially indicated by the reduction of the diarrhœal death-rate (under 2) from 124 to 27, of diphtheria from 45 4 to 9 4, and of typhoid fever from 26 7 to 2 9 per 100,000 of population In a series of tables rates are given which will enable the student of statistics to compare deaths and causes of deaths for each age-period with those of other countries At all ages in the aggregate, diseases of the heart, pneumonia (all forms), cancer, and tuberculosis headed the list in seriousness, chronic nephritis and accident coming next in sequence In a striking table it is seen that at ages 4–5, 5–9, 10–14, accidents hold first place as a cause of death for both sexes, and that for males they occupy the same place at ages 15–19 At ages 2–4 pneumonia is the chief cause of death, At ages 15–44 tuberculosis holds this place, and it is only after the age of 45 that the congeries of end-results called diseases of the heart take the first place in determining death

Infant and Maternal Mortality —The infant mortality-rate 72 per 1000, was the lowest on record It varied from 160 among negroes, 103 in Canadians, and 98 in Poles, to 43 in infants of Russian mothers, who in New York State are mainly Jewish The number of deaths from diseases of the puerperal state per 1000 births was 5 3 There is a remarkable difference between New York City and the rest of the State in puerperal septicæmia, the death-rate being 8 5 per 10,000 births in the City and 18 7 in the rest of the State There is little difference between the two in respect of all other puerperal causes of death

Tuberculosis —Not only has the death-rate from tuberculosis declined to a remarkable extent, but now the rate for this disease (all forms) is lower in New York, being 95 7 per 100 000 of population, as compared with 100 8 for the rest of the State At nearly all ages male was higher than female mortality from this disease In New York City at ages 45–54 the male was two and a half times the female rate at ages 55–64 it was three times, and after the age of 65 more than twice the mortality among females

Cancer —The registered death-rate from this disease was 113 9 per 100,000, representing an increase of 38 per cent since 1910 In the same interval the registered mortality from cancer increased by 53 per cent in Buffalo, by 67 per cent in Schenectady, and by only 13 per cent in Rochester and 16 per cent in Syracuse, and it appears reasonable to assume that these variations are due more to differences in certification of death than in incidence of disease

Bronchitis and Pneumonia —One of the most interesting differences between American and English statistics is the extent to which in the former pneumonia exceeds bronchitis as a registered cause of death In 1913–17 in New York State bronchitis was the cause of an average of 18 5 deaths per 100,000 of population, while pneumonia caused 172 per 100,000. The pneumonia death-rate was practically equal in New York City and in the rest of the State and there was but little difference between the rural and the urban death-rate from pneumonia

Alcoholism —In view of the discrepant evidence as to the results of prohibition the following figures are of interest, relating as they do to one of the "wettest" states in the Union

Alcoholism *Death-rate per 100,000 Population, New York State*

1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
9 2	7 9	10 1	8 3	3 8	2 6	1 4	1 7	3 5	5 5

Since 1923 there has probably been some further increase With these may be contrasted the figures for cirrhosis of the liver

Years	Rate per 100,000	Years	Rate per 100,000
Average of—			
1913–17	14 7	1922	7 0
1918–22	7 8	1923	6 2

In this instance the death-rate, unlike that from alcoholism, appears to be still declining

Deaths in Asylums —It is noteworthy that in one of 22 deaths of adults "mental darkness preceded physical death" These deaths include only those occurring in public institutions

MEDICINE AND THE LAW

Small-pox at Sheffield—Parents Fined

A FATHER and mother were fined £2 10*s* each at Sheffield on Jan 13th for exposing their children when suffering from small-pox the father being further fined £1 for not notifying the cases Dr F E Wynne medical officer of health, said that the children showed signs of having had small-pox for five weeks Three children were infected, it appeared that the eldest girl was working in a place where several others were employed, a room in the house was used for meetings, and one of the children admitted visitors and conducted them to this room, a son was sent by his mother to take the father s dinner to his place of work, even after she had been informed that the boy was suffering from small-pox The mother said she thought the children had chicken-pox though they had suffered from that only six months before Other evidence indicated that she had been reluctant to part with her children to the hospital, though once they were removed there, she was full of praise for the officials

On the same day, at Sheffield, two other parents were fined 5*s* each for permitting their son while suffering from scarlet fever, to be exposed without proper precautions against spreading the disease The case had been notified early in November An inspector, who visited the house, found eight persons living in it, and arranged to remove the boy to hospital Apparently all the scarlet fever beds at the hospital slowly into a bucket The fluid measured 40 pints and was quite clear

It was my intention, then, to give her spinal analgesia, but she was so deeply narcotised that I extended my incision considerably without even further local analgesia and started to strip it To my surprise I found I was not in the abdominal cavity The cyst was extraperitoneal and all the abdominal contents were packed away into the upper part of the abdomen The cyst wall was gradually stripped off, no pedicle was found. A large drainage-tube was pushed through close to the centre of the crest of the ilium and the abdominal wall sutured Free sanious oozing took place through the tube which was shortened day by day and removed on the sixth The intestines gradually came back into their normal position The woman made an uneventful recovery and went home on the seventeenth day.

This was I suppose a pelvic cyst which gradually stripped up the peritoneum as it extended upwards I should be glad to hear any suggestion as to its possible origin To me it was remarkable to be able to perform an extensive operation under a single injection of morphia and hyoscine

I am Sir yours faithfully,
F J W Porter
Karachi, Dec 30th, 1926 Major, R A M C (retd)

PULMONARY EMBOLISM FOLLOWING OPERATION

To the Editor of The Lancet

Sir,—Dr W A. Lister's statistical study of post-operative pulmonary embolism (The Lancet Jan 15th p 111), is a most valuable contribution to our very limited knowledge of this difficult but most important problem I am gratified to find that Dr Lister's figures tend to confirm several of the conclusions [1] which I arrived at in 1921, but which are still not generally admitted Perhaps the most important of these is that sepsis is not a factor of importance. A great many surgeons still believe that sepsis in some form is the main factor in the production of thrombosis after operation These figures, which are much more complete than any hitherto produced, give very strong evidence that sepsis cannot be considered an important factor

Dr Lister also confirms my conclusion that venous stasis in the large venous trunks of the abdomen is the main factor, and his argument that this stasis tends to be produced as a secondary result of an abdominal incision is sound His contention is that the pain caused by any movement of the abdominal wall tends to hamper the action of the diaphragm which is necessary for maintaining the flow of blood through the great abdominal veins I suggest that the presence of a tight bandage round the abdomen is also a factor of importance in hampering the excursions of the abdominal wall

The difficulty in accepting this theory of venous stasis is, as I pointed out five years ago, that experimental evidence shows that venous stasis alone cannot produce intravascular clotting The ligature of a vein in two places, so as to produce complete stasis of the contained blood does not result in the formation of a thrombus within that vein, even in two weeks Some other factor must therefore be present before stasis is able to produce intravascular clotting I suggested that a substance present in all tissues but normally not present in blood—namely thrombokinase, is the factor This substance is liberated whenever tissues are injured, as by an operation or fracture of a bone, or even normal childbirth If stasis in the veins coincides with the liberation of thrombokinase owing to an injury, then both the factors necessary for the production of a thrombus are present and a clot may form

Dr Lister says in his article, "if the liberation of thrombokinase predisposed to the condition, then such operations as Halstead's amputation of the breast or nephrectomy should show a high rate of incidence," but this is not so, as in these operations, although thrombokinase is liberated as it is in all operations the other factor stasis of the blood in the large veins is not present or at least not in the same degree as when an abdominal incision has been made As proving the importance of this substance, thrombokinase, as a factor in the formation of clotting there is an old but interesting experiment If blood is drawn off from the centre of a large blood-vessel by means of a needle and syringe great care being exercised to prevent any possible contamination of the blood with any substance not normally present in the blood itself, the blood so obtained will not clot at all It will in fact go bad and decompose eventually without clotting

Dr Lister's paper has I believe, helped very much in clearing up some of the debatable points in the difficult problem of post-operative thrombosis and embolism and demonstrates how useful the statistical methods can be when properly carried out Our knowledge is still very deficient, and further light is badly wanted on the physiological and experimental side of the problem, especially in relation to the exact mechanism of intravascular clotting and a more exact knowledge of the physiology of the condition might, and probably would, go a long way to solve the surgeon's problem of how to prevent his patients getting pulmonary embolism after operations It is a subject for regret that in these days the physiologist and the surgeon are not in closer touch In the present state of our knowledge I doubt if there are any means known to us of either preventing, or dealing with the condition which are of any value Early movement and massage are doubtful expedients, as I believe that quite often the clot forms either on the operating table, or before the patient is round from the anæsthetic and under such circumstances these measures will do harm rather than good It is full time that we did know how to prevent the condition as it is accountable for quite a considerable number of disasters, and the general impression among surgeons is that it is becoming more frequent as a complication of abdominal operations

I am, Sir, yours faithfully,
J P Lockhart-Mummery, F R C S.
Hyde Park-place, W , Jan 22nd, 1927

OBESITY AND TEMPERAMENT

To the Editor of The Lancet

Sir —After reading of the Italian Premier's alleged dislike for obese people, I thought it might be of interest to analyse the temperamental characteristics displayed by the fat and the lean as met with in general practice Though there may be exceptions the metabolic processes in the adipose are usually slower than in the lean, and this probably accounts for the good nature and easy going character usually displayed by fat people The slim figure demanded by modern fashion has led to innumerable cases of dieting among obese women, and I have noted how a previously contented, cheerful and placid individual has on attaining a marked reduction in her weight, become irritable, sullen, and often definitely bad tempered I admit that with moderate reduction in weight in cases where the obesity has been marked activity of both body and mind is usually increased but if the reducing process has been carried too far, pronounced lassitude with nervous irritability occurs Like the Cæsar who preferred fat men around him complaining that "Yon Cassius hath a lean and hungry look" I think most of us have learnt to expect and discover geniality and sociability among those with a leaning to adiposity.

I am, Sir, yours faithfully,
Alfred A Masser M B , Ch.B.
Penistone, Jan 16th, 1927

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[1] Proc Roy Soc Med, Surg Sect, 1921–22

Correspondence.

"Audi alteram partem"

BLOOD PRESSURE IN INFLUENZA

To the Editor of THE LANCET

SIR,—While the present outbreak of influenza is still in progress may I draw attention to a clinical phenomenon which I believe to be of both diagnostic and prognostic importance I refer to the fall of blood pressure which is almost always to be found in cases of any severity My attention was first drawn to this sign during the epidemic at the end of the war, when I referred to it in a report to the Medical Research Council (Special Report Series, No 36) I then recorded the average systolic blood pressure of a ward of 35 soldiers as being only 93 mm Hg It is possible that at that time other factors, such as fatigue, contributed to the low value, but I find the same now among private and hospital patients, in whom a fall of 10 to 20 mm seems to be common.

The low systolic pressure undoubtedly indicates a toxic condition of the cardiovascular system, and may be in part responsible for the throbbing character of the frontal headache, and for other symptoms I have heard of and seen several cases who, on sitting up in bed suddenly have fainted or become so dizzy as to have to lie down again at once Such patients have low systolic pressure The pressure seems to be at its lowest at about the fourth or fifth day, which is just when in so many cases the fever has passed and the patient wants to get up and see to his affairs No patient should be allowed to leave his bed in this condition During convalescence the blood pressure rises slowly to its normal, but may take a week or two to attain it Much of the feeling of depression and lassitude after influenza is associated with this condition

From my observations on the morbid anatomy of this disease during 1918-1919 (over 170 post mortems) I found the heart muscle to be constantly affected Hyaline degeneration of all the muscular tissue of the body occurs rapidly in influenza, and its effect upon the heart muscle is seen in the systolic blood pressure I think it probable that the toxin of influenza affects the suprarenal bodies also, and through them produces a lowered pressure, but I think the chief method of its production is cardiac

No one would knowingly allow a patient whose heart muscle is in this condition to get up, take a hot bath, or go out, but would keep him in bed and administer tonics until the period of risk is passed I would like to draw attention to the systolic blood pressure as one of the few sure guides in allowing a patient suffering from influenza to get about and as an inclination for further tonic or convalescent treatment. I am, Sir, yours faithfully,

T H G. SHORE

Harley-street, W 1, Jan 24th, 1927

IS THE PRESENT EPIDEMIC OF INFLUENZA DUE TO A STREPTOCOCCUS?

To the Editor of THE LANCET

SIR,—Towards the end of last century the influenza bacillus, or Pfeiffer's bacillus, was incriminated as the cause of influenza, and the ætiology of this important disease was hardly even further questioned until the occurrence of the pan-epidemic of 1918 Investigations made into the ætiology of this last great epidemic began to show that it was very doubtful if Pfeiffer's bacillus was after all the true cause of the malady, and many bacteriologists inclined towards the belief that the disease was due to some strange unknown, minute, filter-passing virus The researches of Olitsky and Gates at the Rockefeller Institute revealed the presence in influenza cases of a minute Gram-negative anaerobic bacillus which they named *Bacterium pneumosintes* This organism, obtained from the naso-pharynx of early cases of influenza, is capable of passing through certain Berkefeld filters, and appeared to cause a febrile disease in rabbits The new organism was very difficult to cultivate, and in consequence vaccines were difficult to prepare, but vaccination on a more or less limited scale with this organism gave rather indifferent prophylactic results During the last few years a scanty amount of confirmatory evidence of Olitsky and Gates's work has appeared, but it is by no means yet proved that *B pneumosintes* is the true cause of the disease

Towards the end of 1924 the writers discovered a new medium which grew *B pneumosintes* very easily and profusely, and succeeded in cultivating it from several cases of influenza A large amount of the appropriate vaccine was prepared, and preliminary experiments showed that it was very toxic, but this vaccine has not yet been exhaustively tested as to its value in preventing the disease The position to-day may therefore be summed up by saying that we are still by no means certain as to what is the true causal organism of influenza

About six weeks ago one of us contracted rather a severe attack of typical influenza, with fever, headache, vague pains all over the body, intense prostration, slight catarrhal symptoms in the left nostril, but no definite bronchitis or sore throat. As we possessed a very good culture medium for *B pneumosintes* we determined to make an attempt to isolate this organism A swab from the left nostril was inoculated into the medium, and 5 c cm. of blood drawn off during the first day of the fever was distributed into two further tubes of the same medium All the cultures were incubated anaerobically. *B pneumosintes* did not appear in any of the tubes, but to our surprise a pure culture of an unusual streptococcus was obtained from the nasal swab and also from the blood The streptococcal cultures were plated, and the streptococcus from the nose and from the blood were found to be identical Here then we have a certain amount of reason for suspecting that this attack of apparently true influenza was due to a streptococcus which had its primary focus in the nose and which invaded the blood stream. The temperature in this particular case remained at a level of 101° to 102°C for four days The attack was followed by the usual symptoms of depression and weakness

We hope to publish full details of this particular streptococcus with microphotographs in a later paper In broth culture it is a small streptococcus occurring in fairly long chains, whilst on solid media it is extremely pleomorphic, showing large ovoid forms with pointed ends It produces strong bleaching on boiled blood agar In view of the fact that influenza is now very prevalent, we believe that the isolation of this streptococcus will be of interest to other bacteriologists

We are, Sir, yours faithfully,
DAVID THOMSON, M B Edin, D P H,
ROBERT THOMSON, M B Edin

Jan 24th, 1927

AN ENORMOUS EXTRAPERITONEAL CYST

To the Editor of THE LANCET

SIR,—A Mahommedan woman aged 36 came to me with what appeared to be a huge ovarian tumour It was noticed about seven years ago, after the birth of her fourth child, and was more on the right side than the left After this she had four more children, and labours were difficult The tumour was tapped three times before she came to me I gave her morphia, gr ¼ and hyoscine gr 1/100, and an hour afterwards incised the lower part of the abdominal wall and tapped the tumour, draining it scattered disease throughout" Had tuberculin previous to his entry at St. George's House physician's chart says: "The breaking down was probably due to increasing dose of tuberculin without regard to reactions" 23/2/14 "Injection of Dr Spahlinger's *ferment*" May 7th. "The signs seem very definitely drier than on admission" June 4th (on discharge) "Signs still show improvement and the general condition of patient is better The sputum averages ½ oz daily He is putting on weight"

Considering that the patient—

(*a*) was an advanced case with extensive disease and cavitation,

(*b*) that he had antigen treatment (therefore active immunisation),

(c) that on his discharge on June 4th after three months and one week's treatment, the amount of sputum had dropped from 2½–3 oz to ½ oz. and his signs were much drier,

I consider the patient as having made a very satisfactory improvement Dr Nelson admits that he entered business, got on very well, married in 1917 He apparently broke down shortly after. This is quite possible, considering that he had an insufficient course of antigens to protect him.

CASE 5 —T T

"Case 5, T T," as given by Dr Nelson, never received my treatment at St George's or after leaving that hospital

There was a case "No 5—E T. A" which Dr Nelson completely omits to quote He was admitted at St George's on March 23rd, an early case of pulmonary tuberculosis After discharge from St George's he received a further course of treatment In answer to a letter of mine he wrote on 11/1/1921 —

> "I was so sorry I did not see you personally before you left London to thank you personally on behalf of myself and my family for your treatment which I was fortunate enough to receive through your kindness in the year 1914 I have been in excellent health since then as regards my chest trouble (thanks be to you again) Now I am doing very hard work for 12 hours a day as luggage porter I was pleased to see so many of your other old patients looking so well the other day, and from what *they told me*, they must be working about as hard as I am Again with very best thanks, etc "

He is still alive and well This is the type of case which ought to receive at once antigen treatment without a previous course of serum

CASE 6 —B M

Dr Nelson says 'Amount of sputum less at first, later increased' The registrar's notes from which these remarks are copied, say: "There was a noticeable diminution of sputum during the first six weeks, but there was afterwards an increase to *former amount*" House physician's report says April 7th: Has lost 2 lb Sputum has decreased Cough much less troublesome" and "chest distinctly drier" Chart says April 23rd "Has lately had ordinary colds increase of sputum stiffiness in head, nasal catarrh" (With colds it is not surprising if patient's sputum increases to former amount No more is said on this case)

The registrar in his abstract says: "Course of 17 injections of Spahlinger's *serum* given without any improvement" Had he properly consulted the charts he would have read March 16th Treatment commenced by Dr Spahlinger's injections of *mixed ferments*" May I point out once more that none of my *serum* was ever used at St George's The records are obviously deplorably kept The same error regarding *serum* appears in the registrar's abstract of readmission

Dr Nelson admits that on second discharge the patient's sputum was less in amount The registrar's notes say "There was on an average only *a quarter* as much daily sputum as before' Dr Nelson states Temperature at end of course tending to be more constantly febrile" I enclose photograph of this patient's last temperature chart at St George's which shows that except on two days following her injections, while reaction existed her temperature remained absolutely normal, and even subnormal, the whole time (*For five days it was normal, it rose to* 102·4° F. immediately after injection, then for five other days it was normal; then again to 104° after further injection; for 12 succeeding days it was below 98·4°. which *ends the chart*)

The patient was discharged on July 2nd, 1914. She wrote on July 28th 1914 —

> "I should very much like to continue with the treatment . . . *I have much pleasure in being able to tell you I feel quite fit In fact, I cannot remember having felt so well for some time My temperature is below normal and my appetite is excellent In fact, I am decidedly progressing famously. I might add I gained 3 lb this week in weight Trusting you will favour me with a reply as to when I can have the treatment, as I am very anxious to continue same, for I feel quite confident of a decided cure* . "

The patient was examined by several doctors and by a leading London specialist on August 10th, when she had practically no active signs in chest and hardly any sputum. She had gained weight steadily since her discharge from hospital and the dyspnœa was much improved On Oct. 23rd, 1914, she wrote:—

> "I am writing to ask if I could come to Switzerland and finish my treatment . after having derived so much benefit from your treatment I do not want to go back . . "

I enclose photographs of this patient's letter. This is a typical case of vaccine treatment; in many cases there is a negative phase (during which the patient remains stationary), followed, after a time, by marked improvement which eventually leads to recovery, provided the treatment is sufficiently prolonged I have little doubt that if this patient had continued her treatment and received a course of antigens and ferments for one year instead of only two months and a half she would not have had a relapse and would have effected a complete recovery

CASE 7.—J A

Dr Nelson *forgets to mention that the house* physician's chart says "Night sweats, severe cough with much expectoration' Registrar's notes state "Rather severe cough with much yellow sputum, profuse and frequent night sweats' The original charts say: 'There is evidence of tuberculous disease over the whole of right chest,' and not only in upper two-thirds of that lung as Dr Nelson states He also forgets to quote 'Physical signs point to the existence of consolidation and cavities of both apices and of general infiltration of the rest of the right lung. The X ray examination showed the left side more opaque than the right'

The house physician's report of April 18th states: 'To-day he has had an injection by Dr Spahlinger' No definite reference to what was injected is traceable on the charts Yet the registrar says in his abstract: "During April to July a course of 17 injections of Spahlinger's *serum* were employed' Once more let me make it clear that *none* of my serum has ever been used at St George's If the registrar had carefully studied the charts he would have read "26/6/14 . . reactions vary in severity, but all of the same type (i e, similar to phenomena seen in tuberculin reactions)' This remark should have shown the registrar that antigens (the contrary of serum) were used

Dr Nelson unfortunately, repeats the registrar's error by using in his comments the words: "Smart reactions, especially with the *serum*" This shows plainly—

1 That Dr Nelson did not carefully read the hospital records, otherwise he would surely have seen the remarks of 26/6/14 comparing the reactions with tuberculin reactions

2 That Dr Nelson is not an authority on specific treatment of tuberculosis and has no knowledge of the mode of action of sera or antigens (tuberculin also is an antigen) Dr Nelson adds "sputum decreased' but he forgets to continue "from 4 to 1 drachm daily" as is mentioned by the registrar. This is important, especially with antigens in such short a period of treatment. Dr Nelson says further "weight as before" This is a slight error. The

TREATMENT OF TUBERCULOSIS BY MR SPAHLINGER'S METHODS

To the Editor of The Lancet

Sir,—Dr Nelson refers to "cases treated under the immediate supervision of Mr. Spahlinger himself between *November*, 1913, and *August*, 1914" The dates are inaccurate The first injection made with my preparations at St George's was Feb 23rd, 1914, and I had never entered St George's before February, 1914 I have before me a photograph of a letter (the original of which is in my safe) from Dr Latham to me, dated Feb 14th, 1914, in which he says —

> "I was glad to hear that you were ready to treat some cases in St George's Hospital If you could meet me there at 2 o'clock on Wednesday, we could then see what cases I may have and arrange matters"

I had never even entered this hospital in 1913 I challenge Dr Nelson to prove his claim

"*There was about an equal number of cases treated at the same time under similar conditions, in nursing homes,*" says Dr Nelson This is absolutely untrue, and I defy Dr Nelson to give the names of "a number of cases" which I had treated with Dr Latham at nursing homes

I will proceed to deal with the individual case records quoted by Dr Nelson, seriatim

Case 1—I H

Dr Nelson's quotation regarding R lung seems wrong, as the hospital charts say "moist sounds over lower lobe of R lung which is probably also tuberculous . . and crepitations over R lower lobe"

The St George's Hospital charts contain the following —

Feb 23rd First injection of Dr Spahlinger combination of ferments and antigens given (The chart says explicitly "*ferments and antigens*" and not serum, as is stated in error by the registrar It will be noted that treatment started on Feb 23rd, 1914)

27/4/14 Sputum report says Sputum very much less purulent than that usually received

6/5/14 Report says Physical signs seem very definitely drier than previously

26/5/14 Specimen of sputum of 25/5/14 shows only 3 T B, and these only by the antiformin method

The registrar's notes are wrong when he says "A course of 26 injections of Spahlinger's serum was given" None of my serum was ever used at St George's

This patient was discharged on June 9th The patient, therefore, who was obviously of an advanced type (as is admitted by Dr Nelson) had three months' antigen treatment, the last report, on which the registrar's notes are based, is dated 26/5/14, the previous injection having been given on 22/5/14 In my opinion, to obtain with antigen and ferment treatment in three months' time such improvement as is indicated by the drying up of physical signs, diminution of purulence of sputum, and almost the disappearance of T B in sputum, is highly satisfactory I am of opinion that any unprejudiced expert would be satisfied with this marked improvement Dr Nelson says this patient has not been traced, she may be dead or still alive To me she was reported as alive and well in 1923 when I tried to trace her But, as I have not seen her personally nor had a letter from her, I prefer to make no statement on this point at present All I claim is that this patient made a very satisfactory improvement in three months' treatment

Case 2—A H

As Dr Nelson admits that this patient was alive in 1926, the only comment I wish to make is this Dr Nelson's statement says that under previous gold treatment she lost 5 lb in weight, under my treatment she gained 5 lb To my recollection her lupus was much improved, but I have unfortunately, no photograph to prove it

Case 3—M H

Dr Nelson's report quotes "early tuberculosis of larynx" St. George's Hospital records say 'Larynx, 14/1/14, considerable tuberculous ulceration affecting R arytenoid, chiefly, and interarytenoid space" Another hospital report says "Tuberculous ulceration extending to left arytenoid; infiltration of both aryteno-epyglottidean folds, three small tubercles on the edge of the epiglottis Chest Signs point to massive disease which appears to be on the point of breaking down X ray reports Extensive tubercular disease in both lungs There appears to be a large cavity at the L apex and several smaller ones scattered *throughout the left lung*"

Dr Nelson's report says that during her course of gold treatment she lost 4 lb, but that her signs remained stationary. He forgets to quote from the hospital records the passage "Except for more marked signs of excavation at L apex" 13/3/14, another chart says "Very marked signs now of excavation left upper lobe in front" 7/4/14 Next chart says "Commenced with injections of Dr Spahlinger's *ferments* since yesterday"

My comments on this case are as follows —

1 She received ferments and no serum 2 She commenced my treatment on April, 1914, and therefore could not have been under my care since November, 1913 3 During the week preceding the beginning of my treatment she had a quantity of sputum varying from ½ oz to 2 oz The last six days before her discharge she had from 0–½ and then, four times, a trace 4 Regarding sputum test, report of June 13th, 1914, signed Hunt, says

"T B present They are rather scanty compared to what was seen in sputum specimens 3 or 4 months ago" That is what Dr Nelson calls "T B + rather fewer" 5 From which chart does Dr Nelson get his statement. "Physical signs unaltered"? If he will present the original chart I shall be greatly interested 6 On one of the charts the last clinical examination is entered against the date April 18th Then there is written on the same chart (about the middle) merely the date "May 2nd" All the rest of the page is blank There is no mention of the examination which apparently ought to have been made on May 2nd 7 One other chart, signed "J W L," ends at the date May 11th The hospital records regarding this patient are *incomplete* and badly kept She was discharged in July

My conclusions on this patient are This was an advanced case, both lungs as well as the larynx were involved The patient was treated with antigens *therefore, she was being given active immunisation* treatment during three months and eight days There was a loss of weight of 4 lb With regard to the physical signs on discharge, perhaps Dr Nelson will oblige me with the original hospital chart quoting examination on discharge Sputum decreased from ½–2 to 0–½ T B decreased from numerous to scanty

In his summary Dr Nelson calls this case "slightly worse" I call it, if anything, better, and one cannot expect more in an advanced case with antigen treatment (active immunisation) in such a short period I never troubled to trace this case as it had not received the full course of antigen treatment, which, in such a case, would have required several months longer I expected the patient would be dead—not as a result of any inefficacy of my antigens, but owing to insufficient length of treatment

It must be remembered that with serum treatment the patient receives the defences ready made by the horse, hence the rapid improvement With the antigen treatment (active immunisation) the patient must manufacture himself his own defences, and there is, therefore, generally a negative phase It takes a considerable time before these *defences* are properly trained to fight, and the time is specially long in advanced cases where very small doses of antigens must be used to avoid such disasters as those referred to at the beginning of the next case and attributed to tuberculin by the house physician

Case 4—M C

The hospital charts contain the following "Massive disease of upper half of R lung with cavitation, L lung upper lobe affected (possibly massive disease), and expenses of my researches surely I was entitled to have a duplicate of case records ? Copying was taking too much time I therefore asked for permission to photograph each sheet I received this permission and was even helped in my work by some members of the medical staff

Summary of Conclusions

1 Dr Nelson's article bristles with inaccuracies about case records, dates, and the remedies employed In some of his quotations he omits important words or interpolates remarks of his own

2 To the ordinary reader who rarely has time to read the whole details of the cases, and therefore glances chiefly at "conclusions," Dr Nelson's article would convey the impression that ten cases were treated by my method for ten months, when in reality the longest period of treatment was five months. One patient had only six days' treatment and another three weeks' treatment

3 He is wrong when he says that only one case is alive—three are alive (out of eight, not out of ten, two cases, as I have shown, are invalid for purposes of comparison)

4 He is wrong when he says that no cases were *cured—three were cured*

5 He is wrong when he says that only four cases made a *slight* improvement Immediately on cessation of treatment five cases showed considerable improvement, which eventually led in *three* of them to complete recovery It is possible that a *fourth* case (No 1) is also well and alive, but she was not traced lately

6 He is wrong when he says that Cases 3 and 6 were worse Case 3 improved and Case 6 improved very markedly, especially during the two months following her discharge from St George's In fact, none of the cases became worse, in spite of the fact that they were severe cases and that antigen treatment was used This in itself is a tribute to the value of my antigens

7. He is wrong when he states that Dr Latham found my remedy ineffective Dr. Latham himself stated that the results were sufficiently encouraging to warrant a thorough trial of the method Dr Nelson recognises that Dr. Latham was a "very learned and wise physician whose opinion in such a matter would carry almost universal conviction "

If serum treatment had been used the results would have been more rapid Vaccine (or antigen) treatment only shows its positive results after a much longer period of time, also, the full benefits derived from the treatment are only evident when a few days have elapsed since the last injection to bring about a specific focal reaction, followed by local and general symptoms These, which are of a temporary nature, only disappear in the course of, say, 10 to 20 days

8 May I further quote Dr Nelson's own words · "They are the sort of cases in which an arrest of the disease with a return to reasonable health and life on the part of several of them would have indicated the presence of a curative agent in Mr Spahlinger's preparation . " Those patients who *received* a course of treatment sufficient for their condition are still alive; those who had an insufficient course are dead What *better proof of the* efficacy of my work does Dr Nelson wish ?

I am, Sir, yours faithfully,

H SPAHLINGER

Institut Bactériothérapique, Carouge, Genève,
Jan 11th, 1927

To the Editor of THE LANCET

SIR,—As I was associated with the late *Dr* Arthur Latham in the treatment of cases of tuberculosis with Mr Henri Spahlinger's preparations, and as it was on my suggestion *that Dr Thomas* Nelson sought out the after-histories of the cases treated, it may not be out of place for me to write a few lines commenting on some of *the points* raised by Mr Spahlinger's long letter

The cases treated at St George's Hospital were chosen by Dr Latham and myself together, *all the* injections were performed by me full private notes (entirely separate from the hospital notes, which I was in the habit of supplementing) on the history and progress of cases were made by me for Dr Latham and nothing, to my knowledge, was revealed to him by Mr Spahlinger of which I was not cognisant

At our first interview with the latter at St George's, Dr Latham rightly insisted that we must know the contents of his preparation before we used it "Your methods of manufacture," he said "may be secret, but we must know *broadly* its constitution " Mr Spahlinger replied that the preparation consisted of ferments extracted from various organs (the spleen especially) of tuberculous animals passed through a special filter of his own invention to remove "the harmful tryptic element " On several occasions during the treatment of cases at St George's and elsewhere he handed me something evidently different to inject, which I feel sure he referred to as his "serum." Mr Spahlinger is a foreigner, and, as the St George's Hospital bacteriologists complained, his terminology was naturally, to our way of thinking, loose

Dr Latham and I asked him at the outset how long a course would be required in view of the question of beds, on this point he was never very definite as far as I can remember, but he assured us that all the phthisical patients would lose the bacilli from their sputum in at least six weeks, and there would be such *remarkable* improvement that we, who were, unlike him, physicians, could then judge for ourselves. These promises of dramatic improvement were, unfortunately, not fulfilled

I well remember another series of cases treated about the same time outside the hospital, which I watched for Dr. Latham Fortunately, Dr Edward Hunt, bacteriologist to St George's, accompanied me on at least one occasion to the house where these cases were treated, and is, of course, willing to attest to the fact I think that Mr Spahlinger should remember this series of cases, as I always understood that he paid for the expenses of nursing, &c —but maybe it was his father who paid and he has forgotten Anyhow here again he assured me that certain cases of lupus selected for treatment among others would be cured in six weeks They did not appear materially benefited in my opinion at the end of a longer period I was genuinely sorry to have to tell him so, as he always appeared to me in those days a sincere enthusiast—and there we parted ! I reported to Dr Latham and, at his suggestion, went away for a holiday, the war came almost directly ; I crossed with the Expeditionary Force; on my demobilisation I found Dr Latham an ill man, we never resumed our intimate association in work ; I never discussed the Spahlinger cases with him again, and, as all know, after a long illness he died

Mr. Henri Spahlinger is not a qualified physician, *it is often difficult* for physicians of even high standing, who have not lived in chest hospitals, to appreciate fully the frequent and often long *remissions* which stay the downward course of the average chronic consumptive under no special treatment of any kind, and also the *wonderful* benefit derived from rest, especially absolute rest, in bed Maybe none of us yet appreciate fully the effects of injections of *foreign* protein *Dr* Latham had not only a wide experience of pulmonary tuberculosis, but he had also that enviable gift of restrained optimism *so necessary* to research ; he always encouraged, while he watched and waited

One often thinks *that the curative* effects of any new treatment for pulmonary tuberculosis must now be dramatic to be convincing It is now just on 13 *years since I* first met Mr Spahlinger, during which time several hundreds of thousands of people have died in this country alone of tuberculosis, *and the* essential details of his method remain undisclosed

I am, Sir, yours faithfully,

Harley street, W, *Jan 24th, 1927.* J W. LINNELL.

To the Editor of THE LANCET

SIR —I must thank you for showing me Mr. Spahlinger's letter and giving me the opportunity of answering it at once I will immediately give Mr.

patient put on 2¾ lb between the beginning of my treatment and discharge

Dr Nelson states "signs the same" Is he aware of the fact that after an antigen reaction all signs in the chest are temporarily more active on account of the focal reaction which follows? One can only give a considered opinion on signs in the chest when at least ten days have elapsed since the immediately preceding specific focal antigen reaction The last chest examination was made the fifth day after the last reaction (From 98 4° F temperature went to 102° F, to drop again to 98° F the following night) Had this examination been made five days later I am convinced that instead of "signs the same" he would have found "signs much drier" This remark applies to all the cases quoted in Dr Nelson's article

Again, Dr Nelson forgets to quote from the registrar's note, "the general condition was improved" This patient wrote to me from Edinburgh in his own handwriting on 25/11/20, saying —

> "*In 1916 I* started working again at the back of the counter and in 1917 after many rejections I was passed A1 for the army Unfortunately, my people didn't want me to go and appealed to the military authorities, consequently I was discharged Since then I have been in charge of the paper department and stationery factory, and keeping well I can do my round of golf after business hours and have a night's dancing without feeling any the worse"

This letter speaks for itself No comments are necessary The patient may have died in 1921, as Dr Nelson says But what was the cause of death? A relapse after these six years of good health might be attributable to an insufficient course of vaccine If it were, it would strengthen my argument that antigen treatment should be strong in early cases, or, in those more serious cases where it could not be administered in large doses it should be given over a long period

CASE 8.—G E

The house physician's report states "Pott's disease, the over-lying skin is thickened and inflamed Some local tenderness," whereas the registrar says "Angular deformity of lower dorsal spine with thin and inflamed skin over it" Was it thickened or thinned? Dr Nelson states "lungs have a poor air entry at left base, otherwise not *abnormal*" But the hospital charts classify the patient as "caries of spine (tuberculous) and chronic pulmonary tuberculosis" House physician's report states "Chest No gross evidence of T B" Another chart says "Creps at left base behind X ray report, however, 'general mottling of both lungs suggesting tubercular disease'"

The registrar's report says "Lungs suggest tubercular infiltration at left base" The chart also mentions "losing weight" In this case also the registrar mentions that injections of Spahlinger's *serum* were given Here again he is wrong There is no reference to serum on any of the charts Dr Nelson is repeating the same error regarding sera The registrar's notes mentioned that the patient was *slightly improved* Dr Nelson makes no reference to that improvement, which a specialist might call more than slight, considering that the admission chart contains the words "difficulty of turning over in bed," and that the chart of discharge says "no difficulty in walking afterwards"

On July 28th, after her discharge from St George's, this patient wrote asking for further treatment She said —

> "I feel sure that if I had a few more injections I should be permanently cured"

I paid her expenses for a further stay in London and she received some more injections At the end of August her condition was as follows No pain, local tenderness disappeared Patient feeling stronger, able to walk without any trouble

On August 5th, 1921, she wrote again "My healing is certainly wonderful" No further comments are necessary

CASE 9.—F B

The registrar's notes say "Under observation for six weeks For first three weeks he was up daily, the temperature was highly irregular and swinging the sputum became more copious and contained abundant T B The signs became moister and suggested cavitation at right apex During the remaining three weeks three injections of Spahlinger's serum were given Each was followed by constitutional and febrile reactions and the temperature was rather less swinging and lower He was removed by parents on June 13th before further injections had been tried, his condition being practically the same as on admission"

It is useless to comment on this case, which had only one week's antigen treatment (three injections), except 1 To notice that here also the registrar calls my antigens "serum" 2 Why does Dr Nelson say "only three injections of Spahlinger's cure given"? 3 The way Dr Nelson puts the case seems to imply that the parents had removed the patient because he felt worse The three injections of antigen he received certainly did not make him worse The registrar says explicitly that "his temperature was rather less swinging and lower" Other symptoms *status quo*

CASE 10.—M O

The registrar's note says "She was under observation for two months The temperature throughout was extremely irregular and signs tended to become more extensive During June she had six injections of Spahlinger's serum, but without obvious benefit, there being progressive loss of weight and no change in amount of sputum and of T B therein contained" Same remarks regarding antigen, called "serum"

The patient had only three weeks' treatment Very small injections of antigen were given on account of the severity of this case Surely no specialist could expect such a case, when given active immunisation treatment, to show positive results in a few days, and it is ridiculous that Cases 9 and 10 have even been mentioned by Dr Nelson It would be better to say "Two further cases received a few injections, but the period of treatment was too limited to permit any conclusions being made one way or the other"

Since publishing his article Dr Nelson has made further comments on my work "To my knowledge Dr Latham tested innumerable 'remedies' for tuberculosis, caring hardly at all from what source they came He found them all ineffective, including that of Mr Spahlinger," he says Unfortunately for Dr Nelson this statement does not correspond with the facts, nor with Dr Latham's opinion The latter is expressed in a document written in his own handwriting, when he asked me in 1914 to publish a statement on the cases we had treated at St George's Here is the document —

> "Short scientific account of the method
>
> "Then a statement to the effect that a number of cases have been treated at St George's, etc, etc, under the care of etc, etc, and that the results, although sufficient time has not yet elapsed to speak definitely, are sufficiently encouraging to warrant a thorough trial of the method"

Dr Latham was delighted that such severe cases were responding favourably *to antigen treatment*, and he had asked me *to call on him in order* that I should publish an article on the subject He was quite aware that the cases had not *had time to be* cured, hence his words "sufficient time has not elapsed to speak definitely", yet they had made enough improvement for him to say "the results are sufficiently encouraging to warrant a thorough trial of the method"

Dr Nelson claims that I had *no right* to photograph the hospital records How absurd! Here are the facts Three months after the war *had broken out* I decided to return to Geneva *as my supply* of antigens was running short Supplies of serum had long before been exhausted I asked for permission to copy the charts so as to be able to consult the records After all that I *had* incurred in the work invariably migrate out separately and not in sheets (see Fig 1 and Fig 2 in my paper in THE LANCET of Feb 21st, 1925) In solid media such as plasma on the contrary, the appearance of sheets of cells is common

2 That these migrating cells are indeed cancer cells is indicated by the fact that when inoculated into mice they cause cancer.

3 Every cell in Fig 3 A is indubitably an M_{63} cell and the cells in Fig 5 A are human cancer cells, the superficial resemblance to fibroblasts ceases to be misleading after some experience The serological reactions. nuclear characteristics type of granules early migration &c all demonstrate the malignant nature of these cells.

I should be happy to show Dr Mottram in my laboratory the appearances of human and mouse cancer cells when cultured in a liquid medium

I am, Sir yours faithfully.
THOMAS LUMSDEN

Lister Institute of Preventive Medicine, London, S W,
Jan 22nd 1927.

TRAUMA AND TUMOUR

To the Editor of THE LANCET.

SIR—May I trespass upon your space to ask if anyone has met with the development of a tumour in a wound inflicted upon a combatant during the late war? If mere traumatism can induce carcinoma or sarcoma it would be natural to expect examples from so great a wealth of material

I am. Sir. yours faithfully.
G LENTHAL CHEATLE

Harley-street, W 1, Jan. 24th 1927

MEDICAL TEACHING ON BIRTH CONTROL

To the Editor of THE LANCET.

SIR—In his address to the Manchester Medico-Chirurgical Society. reported in your last issue. Dr. Giles makes a statement at variance with the experience of normal women who use contraceptives. Speaking of the mechanical prevention of the entry of spermatozoa into the uterus he says of the devices for this purpose: "their chief virtue is that they are a source of revenue to those who sell them" As one who has never sold them and never will. but who owes her life to their use. may I. in the name of normal womanhood point out that this misrepresentation is made by one obviously unacquainted with the profounder essentials of contraceptive knowledge and practice.

I agree with Dr Giles that there are a number of "so-called birth-control clinics" which advise without selection of suitable cases or a discrimination of the various means of contraception The clinic which I have founded is run on scientific lines. and is supported by many of the leading medical men and women of the day The commercial imitators are to be deplored. but they would not have come into existence had not the Ministry of Health interfered with medicals in its employment and hindered them from seeing that suitable contraceptive information was freely available thus making it commercially profitable for unscrupulous firms to foist on the public expensive articles bought by trustful women who are in such misery that birth control contrivances are the prime necessity of their lives. It is within my own knowledge that rubber and metal articles costing at wholesale prices less than a couple of shillings are retailed at prices up to three guineas each since the higher the price the more do the poor women trust in their efficacy.

The advice on methods given by Dr. Giles in his article contributes nothing to the scientific knowledge of the subject All and more was contained in my small popular book published eight years ago and more fully set out in my book Contraception—Its Theory. History and Practice," published in 1923 If Dr. Giles has learnt no more of contraception than to say "the condom plan is the best," he will not satisfy intelligent women.

Finally I must contradict Dr. Giles's statement that the least harmful plan is the restriction of intercourse to the 'safe period." Where both of the couple are normal and healthy there is no "safe period." and where there is its use involves the coercion of a physiologically unready woman at times and the refusal of her at other times when she is ready for coitus. both of which are barbarous and immoral.

I am, Sir, yours faithfully
MARIE C. STOPES
President, Society for Constructive Birth Control
and Racial Progress

Whitfield-street London, W, Jan 24th, 1927

DEATHS UNDER ANÆSTHETICS

To the Editor of THE LANCET.

SIR,—In your annotation on my paper published in your last issue. you suggest that an increase in recent years in the number of operations of a severe type may account in part for the greater number of the anæsthetic deaths set out in the tables published by the Registrar-General I may point out that these statistics purport to deal with deaths under or connected with anæsthetics" and it is not clear how deaths due to the severity of an operation can be returned in this category. However. I do not think it necessary to debate this point. because the Registrar-General publishes a list every year of the number of anæsthetic deaths returned as occurring under specified operations which shows that the great bulk of the deaths occur under operations of a less severe type and further that these, collectively, bear practically the same proportion to the full total of the deaths in 1924 as they did in 1911. If your suggestion had any serious significance. I think it would have been reflected in these figures I must apologise for thus trespassing further on your space, but I think that in considering the Registrar-General s returns. care should be taken to free them from any suggestion which might tend to confuse the issue—I am, Sir. yours faithfully.

A. G. LEVY.

Manchester-square W 1 Jan 24th, 1927

STREET ACCIDENTS IN LIVERPOOL.—As reported to the police of Liverpool during 1926 there were 64 persons killed and 3937 injured The total number of accidents was 3717. and 2538 mechanically-propelled vehicles were involved There was an increase of 13 fatal accidents as compared with the previous year

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.—At the opening meeting of the spring session Dr. Maitland Ramsay gave an address on Toxic Iritis. He deprecated the use of the term rheumatic iritis because. though sometimes associated with chronic arthritic states. iritis practically never occurred in rheumatic fever. He had chosen the subject, he said, because it so aptly illustrated the general principle that the cause of disease was not necessarily to be found in the organ manifesting the symptoms. Toxic iritis being a local manifestation of a general state local treatment was essential to its relief, but cure was not obtained until general treatment removed the underlying cause and so prevented recurrence. For success general treatment must depend upon recognition of the toxic process. In many cases the *focus of* infection was found in the teeth. tonsils. nasal sinuses or intestinal tract but in others it followed after an attack of some general infection such as influenza. In some cases the source of the infection remained a matter of conjecture and in these circumstances the iritis was spoken of as idiopathic but it was very difficult to understand how an iritis could occur in a healthy patient. In those cases, for example in which posterior synechia interfered with the intra-ocular circulation and tension the local symptoms were intense. The relief afforded by iridectomy was so complete that apparent cure resulted but if general treatment was discontinued recurrence of the inflammation in the affected or even in the healthy eye was to be expected Operation was a confession of failure and disaster would inevitably follow if its dramatic results should lead to neglect of general treatment.

Spahlinger credit for his only correct statement When I used the words November, 1913, to August, 1914, this was the complete period the cases treated by Mr. Spahlinger were under observation by Dr Latham As is made quite clear in the detailed notes the first case was not treated by Mr Spahlinger until February, 1914

I commenced to answer his specific charges one by one Where I could make out the exact nature of his grievance I soon found that the same answer applied to them all By taking individual notes apart from their context, Mr. Spahlinger attempts to show that I have made deliberate errors in description and in fact I see, however, on going over them again that my much condensed accounts of very voluminous notes are all perfectly fair summaries of the history, extent and severity of the disease and changes after treatment I was aware that I might be accused of bias, so that where I have summarised the mildly conflicting facts and reports that will occur in any notes, I always gave to Mr Spahlinger the benefit of any doubt

Two examples from Mr, Spahlinger's own quotations will suffice to show what I mean, to keep them to concrete facts we will take the sputum reports of the first two lung cases In case No 1 he makes a great deal of the "three T B found by the antiformin method," dated 26/5/14 Having the notes in front of him, and speaking in the interests of truth, he has not told you, Sir, that the very next report, dated June 3rd—six days before the patient's discharge—says "T B present, 30 to 40 per field" I did *not* take this report alone, because on studying the many and careful reports (by Dr E L Hunt) as a whole, there certainly *was* a diminution of T B in the sputum. I made that appear, perhaps, even more so than it really was by quoting the "antiformin" report Again, in case 3 Mr Spahlinger seems to object to my translation of Dr Hunt's report—which he quotes—as "T B plus, rather fewer" He has not the advantage of seeing the private additional reports kept by the bacteriologist in his laboratory for his own information This very report also says "Many fields show none, some fields show 10 to 20 bacilli singly or in little groups" Under the circumstances I think my summary is very fair indeed

I might continue this kind of example in every case I am not in a position to reply to Mr Spahlinger's reference to personal relations with Dr Latham, so I have taken the liberty of showing the letter to Dr Linnell, and I hope you will be able to print his reply He will also finally dispose of Mr Spahlinger's reiterated statement that there were no cases treated in a nursing home outside St George's For some reason Mr Spahlinger wishes to forget these cases, among them was the poor fellow, T T, who died so rapidly after Mr Spahlinger's treatment The case of E T A. I was able (owing to the kindness of Dr Leonard Williams) to show had no tuberculosis by publishing the full notes in a letter to THE LANCET of Jan 15th But Mr Spahlinger, with these notes in front of him, still includes this case as a cure of tuberculosis There can be no doubt that Mr Spahlinger has the notes, he says so But there is no record in the minutes of the House Committee or of the Medical School Committee that he was given leave to copy them.

Mr Spahlinger is highly indignant with me for using the word "serum" in inverted commas, which I did twice where it occurs in the notes Elsewhere I have used the word "preparation" or some equivalent "Serum" was not used in any scientific or pseudo-scientific sense, for neither I—nor presumably the clerk who wrote the notes—would wish to pose as an expert in the nomenclature of secret preparations

I would not weary you, Sir, by dealing with the inconsistencies in every line of Mr Spahlinger's letter He complains in one place that I have not given due emphasis to the isolated report of a lung being drier, and a few laps later says that another lung should not have been noted as wetter than it might have been if it had been less wet if examined when it ought to have been drier—at least that is the best I can make out of it Briefly, I gather that he is really disgruntled because I have not inserted and underlined every favourable comment and suppressed every sign of deterioration in the patients

Perhaps I had better explain Nos 3 and 4 of Mr Spahlinger's "Summary of Conclusions" One case is certainly alive—lupus Of the other two Mr Spahlinger says are alive, one is the spurious case of E T A, which of the *untraced* cases he assumes to be living is not clear Presumably it is No 1 who, he says, was alive in 1923, but omits the simple information by which this might be verified My inclusion of the case No 9 was for completeness, one can argue little from it No 10, however, was getting so rapidly worse under Mr Spahlinger's treatment that even he could see it and desisted

In my original article I endeavoured not to express even an opinion that might seem prejudiced, and I made the lenient comment that "such slight indications as there are of improvement are not more than one would expect from tuberculous patients after they had been in bed for periods of time such as these were" I suppressed my own conviction that they were worse than if they had had no treatment but simple rest in bed, and much worse than if they had been kept on "absolute rest" for these periods

I am, Sir, yours faithfully,

Brook-street, W, Jan 24th THOMAS NELSON

⁎ We have gladly allowed Mr Spahlinger all the space he desired, in this issue of THE LANCET, in which to reply to Dr Nelson, whose rejoinder, along with a letter from Dr Linnell, is printed in the same issue for the convenience of our readers Mr Spahlinger in some preliminary observations (which are omitted) reproaches us for not having published in 1923 an account by Dr Ogle of the cases treated by Dr Latham at St George's Hospital This account was mentioned by Mr Spahlinger personally to a member of our staff, but was, in fact, *never submitted for publication* His second reproach is that, since August, 1923, THE LANCET has systematically refused to publish anything referring to his treatment by those who have had actual experience of the cases, while it has published several unpleasant attacks by people who obviously did not know the facts Yet he grants that detailed clinical records appeared in THE LANCET of that year, just prior to the date mentioned, under the names of Colbeck, Gloyne, Hudson, Lardy, Savoie, Stephani, Trechsel, and others—Dr Nelson in his paper did us injustice, as he is good enough to admit, by overlooking these records A résumé submitted by Dr Leonard Williams was returned to him on August 3rd 1923, simply because we felt, as was made clear at the time, that the case for the remedy had been stated by its advocates and that nothing further could usefully be done until a supply of it was available for extensive test under controlled conditions. Dr Williams's paper subsequently appeared in the *British Medical Journal* which had not then dealt with the subject That is all three years ago, but Dr Stephani, Mr Spahlinger's principal supporter in Switzerland, wrote to us on Jan 15th last, stating that he had always found THE LANCET "anxious to show every impartiality concerning the sundry reports about Spahlinger's discovery " The fact is, as any unprejudiced reader may see for himself, that THE LANCET has during the last 12 years faithfully presented such clinical evidence as is available of the value of Mr Spahlinger's preparations and has never ceased to reiterate, at the risk of being tedious, its appeal to Mr Spahlinger to put these preparations to a convincing test of their utility —ED L

IMMUNITY TO IMPLANTED TUMOURS

To the Editor of THE LANCET

SIR,—The points raised by Dr Mottram were considered and settled years ago

1 From the study of over 2000 cultures it is seen that M_{63} cells cultured in my liquid serum medium,

was admitted an honorary Fellow of the Royal College of Surgeons of England, and only a few days before he died he was gratified to see a reference to his work for renal surgery in the bicentenary issue of *Guy's Hospital Gazette* Mr Larkin's clear mind and confident judgment showed to advantage in the celebrated Wainwright trial of 1875, when his accurate evidence was largely responsible for the prisoner's final conviction, winning handsome recognition from the Lord Chief Justice The care and thought which he brought to the solution of a forensic problem was also applied to his surgical work, and especially to the treatment of fractures As a boy he was much in contact with agriculture and engineering and in his hobbies as in his work he showed a mechanical turn of mind In later years he took a keen interest in gardening and farm work at his home at Grove Park During most of his life, however, Mr. Larkin's especial interest was in music. This enthusiasm dated from an early association with Canterbury Cathedral, not far from his birthplace at Hoath In early days of practice he was choirmaster at Holy Trinity Church, Southwark, and later he held the same office at St Augustine's at Lee For many years also he was intimately associated with Westminster Abbey, where his old friend, Sir Frederick Bridge, was organist As deputy also he sang in the choir at the jubilee celebrations of Queen Victoria and at the coronation of King Edward and King George, and he was, himself, the composer of a number of chants and of other church music

Mr Larkin leaves a widow One of his sons is Dr Reginald Larkin, of Southwark

JOHN WEBSTER, F I C

SENIOR OFFICIAL ANALYST TO THE HOME OFFICE

Mr John Webster, senior official analyst to the Home Office and pathological chemist to St Mary's Hospital, died suddenly at his home in Hanwell on Jan 20th at the age of 49 He was born in the Midlands of Quaker stock and was educated at Mason's College—now incorporated in the University of Birmingham Here he studied chemistry for three years in preparation for the examination of Associateship of the Institute of Chemistry of Great Britain and Ireland, which examination he passed in 1901, becoming F I C in 1904 Later he acted for some years as assistant examiner to the Institute in the examination on the Chemistry and Microscopy of Food and Drugs, which is recognised by the Ministry in connexion with the appointment of public analysts Webster's first post was that of assistant analyst to Sir Thomas Stevenson, of Guy's Hospital, who was then senior scientific analyst to the Home Office On the death of his chief in 1908 Mr Webster moved his laboratory to St Mary's Hospital, where he worked under Sir William (then Dr) Willcox, who succeeded Stevenson in his official connexion with the Home Office In 1909 Mr Webster was appointed demonstrator of pathological chemistry in St Mary's Hospital Medical School, a post which he held to the time of his death in conjunction with that of pathological chemist to the hospital and assistant director of the Department of Chemical Pathology of St Mary's Hospital Institute of Pathology and Research In 1919, on the retirement of Sir William Willcox from this office, Mr Webster was appointed senior official analyst to the Home Office, a post for which years of study of toxicological problems from the medico-legal aspect had made him eminently fitted to hold

An acknowledged expert in technique, Webster's original publications were not numerous He was always ready to place his chemical knowledge and experience at the disposal of his colleagues at St Mary's Whatever the pressure of his forensic duties his readiness to further the clinical applications of chemical work never failed, it is exemplified in a paper on Cœliac Infantilism, contributed by him jointly with Dr Reginald Miller and Dr H Perkins to THE LANCET in 1920

His interest in the excretion of arsenic, originally aroused by cases of poisoning, was extended to the effects of salvarsan therapy in the arsenic content of the tissues In May, 1916, he presented to the Society of Public Analysts the results of some analyses showing the relative amounts of arsenic found in the various organs after injections of salvarsan, drawing special attention to the high percentage found in the kidneys During the war Webster's activities were largely taken up by researches on the toxicity of trinitrotoluene, and he elaborated a simple test known as Webster's test for the presence of T N T in urine which was set out in an official communication from the Ministry of Munitions (see THE LANCET, 1916, ii, 1926) The test was not difficult to perform, and when efficiently carried out demonstrated the presence of T N T in varying degree in the urine of nearly all those who were working with this substance The value of the test was twofold—first in clinching a doubtful diagnosis in clinical symptoms and secondly in watching the clearance of T.N T from the system after isolation from T N T, and judging whether the precautionary measures taken had been effective

The general public got to know Webster's name through his evidence in connexion with many of the celebrated cases of poisoning, in which he was often associated with Sir Bernard Spilsbury, and formerly also with Sir William Willcox This publicity was distasteful to one who was reserved and retiring in private life, his chief recreation being music Mr Webster was popular with the students at St Mary's and was always ready to help in planning and conducting the musical part of any programme arranged by students' societies He will be missed alike by students and colleagues

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 15TH, 1927.

Notifications —The following cases of infectious disease were notified during the week Small-pox, 675 (last week 342), scarlet fever, 1493, diphtheria, 1109, enteric fever, 36, pneumonia, 2016, puerperal fever, 58, puerperal pyrexia, 131, cerebrospinal fever, 9, acute poliomyelitis, 15, acute polioencephalitis, 4, encephalitis lethargica, 41, trench fever, 1, dysentery, 8, ophthalmia neonatorum, 140. There was no case of cholera, plague, or typhus fever notified during the week

The cases of small-pox were reported from the following counties Derby, 28 (2 from Derby, the remainder from six urban and rural districts), Durham, 349 (6 from Gateshead, 2 from South Shields, the remainder from 26 urban and rural districts, the highest figures being Shildon 50, Chester-le-Street 47, Lanchester 34, Brandon and Byshottles 33, Easington 32, Hetton 20, Crook 19, Jarrow 19, Auckland 16, Willington 13, Sedgefield 10), Hereford 1 (Dore R D), Lancaster, 11 (10 from Southport, 1 from Lytham St Anne's) Lincoln, 4 (Gainsborough), Northumberland, 10 (6 of these from Newcastle), Nottingham 5 (Sutton-in-Ashfield 4, Misterton R.D 1), Yorks North Riding, 1 (Middlesbrough), Yorks West Riding, 266 (157 from Sheffield, 1 from Bradford, the remainder from 12 urban and rural districts, the highest figures being Doncaster 42, Mexborough 29, Keighley 15, Swinton 9, Thorne 7)

Deaths —In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 34 (0) from measles, 6 (2) from scarlet fever, 64 (20) from whooping-cough, 38 (7) from diphtheria, 46 (7) from diarrhœa and enteritis under two years, and 326 (137) from influenza The figures in parentheses are those for London itself.

SUSSEX PROVIDENT SCHEME —The Sussex Provident Scheme for hospital and specialised medical services continues to grow Its headquarters are at Brighton, and the scheme is one by which payment of £1, £1 10s or £2 a year entitles single persons, married couples, or families to full benefits from the coöperating local hospitals During 1926 these hospitals received £7750, compared with £6377 in the previous year A similar scheme has been adopted in the Crowborough district

Obituary.

THOMAS CLAYE SHAW, M D , F R C P Lond

The death of Dr Claye Shaw spells the loss of a recognised leader in mental medicine, for although he had lately lived in complete retirement, he was for a long time one of the foremost figures in asylum administration, and had handled all the medical, legal, and social questions associated with mental disease and failure

Thomas Claye Shaw was born at Stockport in 1841 His father, a chemist and earnest churchman, with a deep belief in the value of educational culture, sent his son early to London University, where he graduated in 1860 before entering on a course of medicine at King's College He took the senior Warneford Scholarship, graduated in medicine in 1866, qualifying for the gold medal in the M D a year later He commenced the study of mental diseases at Colney Hatch Asylum, then under the superintendence of Dr Edgar Sheppard, grandfather of the late rector of St Martin-in-the-Fields Later he was appointed to direct the Leavesden Asylum for chronic mental cases, under the Metropolitan Asylums Board, and from there passed on to the Banstead Asylum, under the Middlesex Justices, then newly established for chronic mental disorder This intention of the founders was happily frustrated, for exigencies of space and the demand for increased accommodation soon necessitated the remodelling of Banstead for the reception of acute patients, and it was at Banstead that Claye Shaw's life's work was begun and completed He secured the confidence of the Middlesex Justices in such degree that he was invited to advise them, and later the London County Council, in the planning and construction of Claybury, the first modern asylum for London, where Sir William Collins afterwards established the first pathological laboratory for the scientific investigation of insanity It was expected that Claye Shaw would have been the first director of Claybury, but he recommended for this post Sir Robert Armstrong-Jones, electing to remain at Banstead himself

Dr Claye Shaw's contributions to the literature of mental disease were many and varied He frequently wrote for the medical papers on the newest currents of psychological thought, and his able and original pen relieved the pages of many lay journals in which he castigated the popular indulgences and fickle fashions of the day, especially upon the psychological side He had faith and courage, for he was ever hopeful of seeing an out-patient department for mental cases at St Bartholomew's Hospital, where he taught, and this hope has since been realised The Hospital Reports owe much to him, and the Abernethian Society, which was under his special patronage Some of his essays, collected as a volume under the title " Ex Cathedra " about 20 years ago, may still be read with pleasure for their broad, human interests In consultation he was precise and definite, giving the family doctor just the accurate and careful instruction he needed for the treatment of an harassing case His academic services were largely requisitioned outside the immediate surroundings of his work, for he examined in mental physiology at the University of London and for the Board of Army Medical Studies He lectured on clinical insanity at St Luke's Hospital, and occupied the chair of psychological medicine at St Bartholomew's He was an active member of the Medico-Legal and Harveian Societies, and for several years presided over the Society for the Study of Inebriety He was largely instrumental in founding the After-Care Association, which keeps in touch with mental patients after their release from institutional treatment

In early life Dr Claye Shaw was distinguished as an amateur actor Sir Robert Armstrong-Jones, to whom we are indebted for many personal details, tells us that he was extremely musical and found great pleasure in playing the organ, not long ago he contributed to the discussion in the *Times* on the healing value of music He was an authority on the subject of the stage and was a well-known member of the Garrick Club He spoke and read French and German fluently and was an admirer of the habit of thought shown in German psychology Instinctively critical and with a satirical tendency which did not permit him to suffer fools gladly, he was often regarded as antipathetic—an erroneous impression disproved by his relation to students, on whom he exerted a magnetic personality touched with a quaint and indefinable humour which never failed to kindle enthusiasm Those who attended his early ward lectures at Banstead in the eighties, when it was his custom to carry in his hand a short cane or marshal's baton to indicate authority, will not readily forget their first insight of the insane mind He was apt to raise questions of absorbing interest such as What would happen if men could live their lives again, retaining their experiences of mistakes and success, with a fair knowledge of the causes that led to them ? contending that it would be a tame world if the interest attached to what we now call chance ceased to exist He attacked the " gentle dulness " of mankind, of whose existence he was often conscious, quoting with approval Wundt's declaration that people think very little and very seldom, and he delivered a courageous lecture on the special psychology of women, reaching conclusions bearing upon the rightfulness of women's claim to the electoral franchise at a time when medical men generally hesitated to express such opinions His presidential address to the Section of Psychological Medicine at Exeter in 1907 reads now like a modern presentment of the subject, dealing as he did with the need for classification of cases in institutions and the establishment of mental clinics in connexion with the out-patient departments of general hospitals

In his social life Dr Claye Shaw was much helped by his wife, who was Hannah Gratrix, daughter of the late J Ridgway, of Leavesden, who predeceased him by two years, and who bore him two daughters, one of whom is married to a medical man

FREDERICK GEORGE LARKIN, F R C S Eng

The death of Mr F G Larkin in his 80th year removes a practitioner of wide interests and many talents He received his medical education at Guy's Hospital, where he became president of the Physical Society, and it was before this society that, in 1869, he read the paper on Nephrostomy and Excision of the Kidney, which opened his medical career so auspiciously By its originality and suggestive value, this paper aroused wide interest and is said to have led to the use at Guy's Hospital of operative measures for the treatment of renal calculus and other lesions of the kidney In recognition of this work and of the lifetime of service which followed it, Mr Larkin in 1915

Dr F G Larkin

10 per cent argyrol He thought suction was the main factor in producing improvement, and agreed with Dr Martin's account of the relief afforded by the procedure The technique was as follows The patient has the fauces and pharynx swabbed with 20 per cent novocain for five minutes, then 5 per cent cocaine is swabbed over the epiglottis and glottis The patient lies with head extended, and Jackson's bronchoscope, smeared with 1 per cent cocaine ointment, is introduced—there is generally some spasmodic cough as the tube is passed into the trachea and left bronchus—and 1 per cent cocaine is applied on a mop holder through the bronchoscope A water or electrical suction tube empties the right bronchus of pus which is generally present When pus is seen exuding from the middle lobe bronchus a sucker with spiral spring end, which can be made to enter any lateral bronchus after exit from the bronchoscope, is introduced and further pus evacuated Then removing the tubing from the sucker and connecting the latter with an irrigator, and at the same time inserting alongside of it another suction tube, the cavity is irrigated with warm boracic lotion When the patient shows signs of distress the apparatus is withdrawn, the patient sits up and coughs out the excess of fluid

The Importance of Prevention.

Mr J E H **ROBERTS** said that the advanced type of case ought not to occur ; it was a confession of the failure of early treatment Neither the surgeon nor the physician could cure advanced bronchiectasis Prophylaxis was not sufficiently considered , certain conditions were known to predispose to bronchiectasis, and patients suffering from them were turned out of hospital and not seen again until it had developed. They should be very carefully watched, and measures such as vaccines, avulsion, removal of foreign body and pneumothorax, should be carried out early When the early stages of bronchiectasis had established themselves, the physician, surgeon, radiologist, and bronchoscopist should coöperate as a team. Nearly all cases were unilateral at the beginning, when lipiodol had confirmed the diagnosis and a course of some months' treatment had proved unavailing, surgery should be called in. He agreed that phrenicotomy was not curative except in the early stages, but thought it should always be done as a preliminary to other collapsing operations It nearly always improved the patient's condition and so reduced the risk of subsequent procedures Thoracoplasty had given very good results in early cases, but failed in advanced ones, although it might be of great value as a palliative Grave consideration must be given before the dangerous operations of cauterisation, with its mortality of 20 per cent , and lobectomy, in which the mortality was 50 per cent Lobectomy was necessary in cases where there was associated sepsis beyond the limits of the bronchial tree ; these did not do well after collapsing operations The general line of treatment should be a surgical crescendo He showed slides of a case which had been cured by removal of a collar stud from the bronchus The man had been X rayed several times before, but always in his shirt and vest, and the stud had been taken for a button

Dr F. G **CHANDLER** said that non-tuberculous fibrosis was usually the result of broncho-pneumonia or whooping-cough more rarely of occupation, foreign body, or pressure When possible the cause should be dealt with, and general health must be built up to avoid infection Vaccines might be useful or very dangerous For a progressive case artificial pneumothorax was the best measure, releasing the bronchi from traction for a year or two Failing this 500–1000 c cm of oil of gomenol might be injected The treatment of bronchiectasis depended on the type, localisation, and extent The advanced bilateral basal "glove-finger" type could only be palliated ; less advanced cases improved under postural treatment, creosote and inhalation Unilateral cases could be treated by pneumothorax Phrenic avulsion was another method he preferred to try before resorting to rib-mobilisation or thoracoplasty Oil of gomenol might be tried Some cases of lung abscess cured themselves, other called for pneumothorax, but the best course was drainage, provided the pleura was or could be made adherent at the site of operation. If the walls would not approximate after drainage, phrenic avulsion should be performed Lipiodol would not enter a chronic abscess, and so formed a useful agent in differential diagnosis

In answer to a question by the President, Dr Chandler explained that gomenol was a French preparation of paraffin oil with eucalyptus in it

Exploratory Operation

Mr H S **SOUTTAR** quoted two illustrative cases The first showed the importance of excluding foreign body The patient said her troubles dated from choking on a piece of mutton bone some months before Bronchoscopy revealed a minute piece of bone in a mass of granulation tissue beneath a large abscess. Removal practically cured her. He was strongly in favour of exploration of the chest as a primary procedure It was safe and caused little trouble to the patient, and the condition of the lung could be made quite certain, if a piece of hard non-collapsible lung were encountered the production of a cavity in it by low temperature cauterisation gave the best results With due precautions the procedure was not dangerous and was certainly most effective Aspiration was most dangerous unless the pleura was known to be adherent

Mr V E. **NEGUS** described his experience of a hundred bronchoscopies ; the operation was easy and caused only four or five minutes' discomfort to the patient, who could go home alone after it It was therefore suitable for out-patients, and was at any rate worth trying first In his experience foreign bodies were rare He showed slides illustrating a case in which suppuration had been caused by a fibroma in a secondary bronchus Cure had followed its removal through the bronchoscope He also showed diagrams explaining how swelling of the bronchial mucosa in bronchiectasis upset the normal mechanism so that the bronchus was obstructed in expiration, and no amount of coughing could expel the pus For this reason he regarded dilatation and swabbing with silver nitrate as the essential parts of bronchoscopic treatment The bronchi were held open by the tube so that clear drainage was possible. The surgeon could tell at the third or fourth treatment whether or not bronchoscopy would do good The only adverse results he had known were a death after injection of lipiodol, and loss of a swab temporarily in a bronchiectatic cavity He had injected both gomenol oil and iodoform, but they had, if anything, made the patients worse

The Importance of Septic Foci in Chronic Bronchitis

Dr **GEOFFREY MARSHALL** said that the respiratory defences against infection were very good, but might be broken down by the failure of the nervous mechanism to prevent inhalation of a foreign body, by gross structural changes, and by repeated invasions of pathogenic organisms from a focus of infection outside He advocated thoracoplasty or artificial pneumothorax for pulmonary abscess The role of the pulmonary surgeon was a very limited one, but lung abscess he should certainly treat, and also a few cases of limited bronchiectasis Surgical measures caused far more chronic pulmonary disease than they controlled. The immediate results of rib resection and tube drainage for empyema were admirable, but 50 per cent of cases had some chronic lung trouble afterwards The tube should be sealed off by a watervalve even within the 24 hours He urged the importance of thorough investigation of cases of chronic bronchitis, and quoted a number of patients in whom the discovery and removal of pus in the accessory sinuses had cleared up bronchitic conditions of many years' standing Bronchitis in the upper lobes was invariably associated with sepsis in the nose, throat, or sinuses

THE TREATMENT OF NON-TUBERCULOUS INFECTION OF THE LUNGS

Discussion at the Royal Society of Medicine

A special meeting of the Sections of Medicine, Surgery, and Laryngology was held on Jan 25th, with Dr **Hugh Thursfield**, President of the Section of Medicine, in the chair when a discussion on this subject was opened by Dr. **L S T Burrell**, who dealt with

Bronchiectasis, Abscess of the Lung, and Pneumomycosis

The treatment of *bronchiectasis*, he said, must depend on its severity and must not expose the patient to greater risk than the disease A cause, such as foreign body, should be sought and removed if possible, and simple measures, such as posture and inhalation in a creosote chamber, should be tried before more elaborate methods Artificial pneumothorax was successful for unilateral disease, but usually there was too much adherent pleura to permit of collapse Phrenic avulsion had not proved valuable in his cases In expert hands good results followed aspiration and washing out the cavities through a bronchoscope Thoracoplasty should not be lightly undertaken, as the excellent results in a few cases were balanced by disappointment in the majority Drainage relieved the patient for a time Lobectomy was very dangerous, but partial lobectomy by cautery, though still in its infancy, seemed promising Pneumolysis—stripping the pleura and inserting wax or fat—had not proved very successful

Acute abscess often yielded to rest, posture, and hygiene, but after a month pneumothorax was indicated and should not be delayed lest adhesions form The lung might be re-expanded after a few weeks and collapsed again if symptoms recurred After a time it could be expanded without producing symptoms The yeast cells so often seen in the sputum came only very rarely, in Dr Burrell's opinion, from the bronchi or lung Fungi might cause lung disease with signs and symptoms like those of tuberculosis or carcinomatosis Mycelia were found in the sputum, and large doses of potassium with pneumothorax caused rapid improvement

The Surgical Treatment

Mr **A Tudor Edwards** said thatthe X ray appearance of a chronic *simple abscess* was characteristic the diagnosis should not be confirmed by aspiration unless the pleuræ were adherent, lipiodol rarely entered the cavity because of the swelling of the bronchial mucosa Of surgical measures artificial pneumothorax was more useful at an early stage, especially where the abscess was so near the hilum that drainage was made risky by the large vessels At the periphery it might break down adhesions and infect the pleura, for these cases drainage should be performed at once under local or intratracheal anæsthesia External drainage for five or six weeks was the ideal treatment, but should only be undertaken after careful X ray localisation When the pleura was free it should be rendered adherent by packing with iodine gauze four or five days before the pneumotomy The incision should be vertical to allow resection of a rib above or below if necessary, and the tract should be oblique to allow easy closure Drainage through the bronchus was rarely adequate, and repeated aspiration should be tried for an abscess near the hilum Larger abscesses gave rise to a good deal of fibrosis and secondary bronchiectasis as they healed, and phrenic avulsion was therefore needed in some cases to avoid subsequent thoracoplasty *Bronchiectatic abscess* and the communicating bronchi were clearly shown up by lipiodol, all cases should be investigated by the bronchoscope to eliminate the presence of foreign bodies Lavage was rarely satisfactory, but pneumotomy had given encouraging results It should be a more extensive procedure than for simple abscess, all pockets should be opened up and the cavity lightly packed Phrenicotomy or thoracoplasty might be required to close the cavity later

X rays and lipiodol injections were very important in the diagnosis of *bronchiectasis*, bronchoscopy should be a routine procedure Unilateral cases could be treated in several ways Artificial pneumothorax was only of permanent benefit in the very early stages and drainage had been abandoned Bronchial lavage might greatly improve or cure in many instances, and bronchostomy occasionally ameliorated the condition. Phrenic avulsion prevented the establishment of the condition after other diseases, but did not cure. Thoracoplasty gave good results, but the affected areas were sometimes too rigid to collapse Those cases which gave temporary good results with artificial pneumothorax were likely to be cured by thoracoplasty He had only tried cautery pneumectomy in two cases and lobectomy in one The latter would be the ideal procedure if the technique were improved.

Endoscopy

Mr **G Ewart Martin** said that the use of the bronchoscope was now beyond the experimental stages and had recently been much simplified He compared it with cystoscopy, and illustrated its value in two cases of foreign body which had been diagnosed as tuberculosis and bronchiectasis It caused no ill effects and required no anæsthetic save slight spraying of the epiglottis with cocaine American bronchoscopic clinics found a very much higher proportion of foreign bodies than observers in this country, and it seemed that the possibility was too often forgotten The removal of a foreign body gave a 90 per cent cure of its accompanying infections The few contra-indications to bronchoscopy were recent hæmorrhages, high fever, concurrent severe heart infections, and acute toxæmia Postural coughing would not empty cavities which could be sucked dry by the bronchoscope Cases of bronchiectasis with similar symptoms did not respond to the same type of treatment, and each case must be taken individually Mr Martin described the method he had used and the fate of the 31 cases he had treated by aspiration followed by a weak boracic wash-out. The percentage of cures was small in these chronic cases, but nine of his series had had no more trouble There had been three complete failures, and in all of these there had been multiple cavities with toxæmia. Sixteen were still under treatment and all showed marked improvement, and were strikingly grateful for the aspiration and lavage

Dr **K D Wilkinson** confined his remarks to bronchiectasis, most of which seemed to follow influenza or pneumonia in childhood Since far more cases occurred among hospital patients, it might be that infections of the teeth, tonsils, or nasal sinuses played an important part There was no definite dividing line between bronchiectasis and bronchitis, though a well-marked case could be diagnosed easily The milder cases did well as a rule The three best measures were postural drainage where this could be insisted on twice or thrice daily for long enough; creosote inhalations or Lee's drops, and vaccines He was doubtful if pneumothorax offered real hope of effective treatment He described three patients in whom the lung had been drained or cauterised, and hoped that some safe and more speedy method of dealing with the diseased lung would be devised The diagnostic value of lipiodol could not be over-estimated.

The Laryngologist's Point of View

Mr **C A S Ridout** said that his experience had been limited to chronic bronchiectases, in which he found that bronchoscopy benefited those cases in which radiography revealed a definite area in one or both lungs He described a case in which suction only was used on the earlier occasions lavage later and once the introduction of a drachm or two of

HARVEIAN SOCIETY OF LONDON.—A clinical meeting will be held at Paddington Green Children's Hospital on Thursday, Feb. 3rd, at 4.30 P.M. Tea will be served before the meeting.

ROYAL INSTITUTION.—On Tuesday, Feb. 1st, at 5.15 P.M., Prof. Julian Huxley will begin a course of six lectures on Animal Growth and Development.

HUNTERIAN SOCIETY.—The annual dinner of this Society will be held at the Hotel Victoria, Northumberland-avenue, on Thursday, Feb. 10th, at 7.15 for 7.30 P.M. The Lord Chief Justice, the Lord Mayor of London, and the Lady Mayoress will be amongst the guests.

ASSOCIATION OF PUBLIC VACCINATORS OF ENGLAND AND WALES.—The annual general meeting of the Association will be held to-day, Friday, Jan. 28th, at 3.30 P.M., at the Grand Hotel, Manchester. Dr. James Bennett will give an address on the Pending Changes in the Administration of Vaccination. An address by Dr. F. P. Sarjant, the President-elect, will follow.

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION.—The annual general meeting of the Association will be held at 11, Chandos-street, Cavendish-square, W. 1, on Friday, Feb. 4th, at 5 P.M. (Tea 4.30 P.M.) Dr. James Collier will deliver an address entitled Some Personal Impressions upon the Symptomatology and Diagnosis of Poliomyelitis.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.—The Thirteenth Annual Conference will be held at the British Medical Association House, Tavistock-square, London, on June 30th and July 1st. The address of the National Association is 19, Tavistock-square, W.C. 1.

ROYAL SOCIETY OF ARTS.—At a meeting of the Indian Section to be held to-day, Friday, Jan. 28th, at 4.30 P.M., an address on Forecasting and Control of Cholera Epidemics in India will be given by Sir Leonard Rogers. Sir Michael O'Dwyer, formerly Lieutenant-Governor of the Punjab, will preside.

BRITISH INDUSTRIES FAIR.—This Fair, organised by the Department of Overseas Trade, will be held at the White City, Shepherd's Bush, London, from Feb. 21st to March 4th, the Birmingham section being held at Castle Bromwich between the same dates.

RONTGEN SOCIETY.—A general meeting will be held at the British Institute of Radiology, 32, Welbeck-street, London, W., at 8.15 P.M., on Thursday, Feb. 3rd, and not on Tuesday, Feb. 1st, as was previously arranged. Dr. J. Woodburn Morison will read a paper describing the new radiological department at the Royal Infirmary, Edinburgh, and Mr. H. D. Griffith will read a paper on the Physics of Carbon Arc Therapy.

ROYAL SANITARY INSTITUTE.—A Congress will be held at Hastings from July 11th to 16th under the presidency of Sir William Joynson-Hicks, the Home Secretary. A lecture will be given by Sir William Willcox on Chronic Rheumatism in its Relation to Industry, and there will be a series of sectional meetings and conferences.

JEWISH DRAMA LEAGUE.—A dramatic reading of of "Professor Bernhardi" by Arthur Schnitzler is to be given by the League on Sunday, Feb. 13th, at the Little Theatre. The action of the play takes place in a large hospital in Vienna. Of the 22 characters 18 are doctors and one is a nurse. Tickets will be available to members only, and particulars of membership may be had from Mr. C. Landstone, 35, Cranley-gardens, Muswell Hill, London, N. 10.

THE LATE DR. J. C. UHTHOFF.—The death occurred at Bournemouth on Jan. 19th, at the age of 70, of John Caldwell Uhthoff, M.D. Lond., F.R.C.S. Eng., who was until recently one of the best-known physicians practising in Brighton and Hove, and President of the local branch of the British Medical Association. Educated at Brighton College, he studied medicine at Guy's Hospital and qualified in 1877. Two years later he graduated as M.D. Lond., and in 1881 became a Fellow of the Royal College of Surgeons. At Guy's he won a considerable reputation both in his work and as an athlete. Settling at Hove he soon acquired a large practice. Appointed physician to the Royal Sussex County Hospital and the Sussex Eye Hospital, he made a special study of diseases of the eye and became widely known as a specialist. His advice was often sought by the judges of the local county court circuit with whom he sat as assessor. About 12 years ago he took into partnership Dr. Frederick (Eric) A. S. Hutchinson, who, by tragic coincidence, died suddenly on Jan. 6th whilst on holiday in Switzerland. Dr. Uhthoff retired from practice in the summer of 1921 and went to live at Bournemouth. He was twice married. His first wife was the daughter of the late Mr. Charles King, formerly of North Lodge, Enfield, and his second a daughter of the late Mr. F. G. Cuningham, of Bentley House, Hants.

WOLVERHAMPTON HOSPITAL SATURDAY FUND.—This fund last year reached the "record" sum of £14,357, notwithstanding that the thickly populated district served by the hospital has been very hard hit by the industrial depression.

GLASGOW STUDENTS' COLLECTION FOR CHARITIES.—The annual carnival for the benefit of local charities (carried out by nearly 4000 students of the University of Glasgow) realised about £14,300, being nearly £4000 more than last year's record. Nearly £3000 of the total was realised by the sale of a special magazine, while about £8000 was collected in the form of copper coins.

GRAVESEND HOSPITAL.—This hospital has just expanded its name to "The Gravesend and North Kent Hospital." There are 70 beds and the annual statement records that the wards are "most hopelessly overcrowded and that the out-patient department is utterly inadequate." The new patients in 1926 were 21 per cent. more than in 1925, which itself was a "record" year, and enlargement has become imperative.

SPINNERS' CANCER.—At an inquest held at Oldham on a spinner, aged 78, who had died of epithelioma (mule-spinner's cancer), Dr. A. Smith said that 15 cases of spinners' cancer had passed through her hands during 18 months' experience at the Oldham Union Hospital. The verdict recorded death from epithelioma arising out of his employment.

BRADFORD MUNICIPAL HOSPITAL.—The Health Committee of Bradford Corporation has granted facilities to the workers connected with the welfare scheme of certain local firms whereby these men, by the payment of 1s. per annum to a benevolent fund, are able to insure themselves and their dependents against charges for treatment at the Municipal General Hospital. A socialist member of the Board of Guardians proposed that the Health Committee should be recommended to grant similar privileges to all who might apply, but the motion was rejected by a majority of one. The cost of running the hospital last year was £100,000, of which £52,000 was met by the Corporation and £42,000 by the Guardians, the balance being made up by patients' payments.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Feb. 1st.—5.30 P.M., ORTHOPÆDICS (Cases at 5 P.M.): Clinical Meeting. Cases will be shown. 8.30 P.M., PATHOLOGY: Laboratory meeting at the National Hospital, Queen-square, W.C. 1. Dr. D. McClean and Dr. E. O. Flynn: The Application of the Kahn Test to the Cerebro-spinal Fluid. Dr. E. Weston Hurst: The Production of Hepatic Cirrhosis by Manganese. Dr. J. G. Greenfield: The Occurrence of Hæmofuscin in Nerve Cells. Dr. E. A. Carmichael: Some Types of Cerebral Glioma. Dr. J. G. Greenfield: Hortega Cells and their Pathological Alterations. Specimens of tuberous sclerosis and diffuse sclerosis will also be shown.

WEDNESDAY.—5.30 P.M., TROPICAL DERMATOLOGY-THERAPEUTICS: Special Discussion on The Treatment of Leprosy. Speakers: Dr. J. M. H. MacLeod, Dr. J. H. Sequeira, Dr. Graham Little, Dr. G. Pernet (Dermatology), Dr. T. A. Hendry (Therapeutics), Dr. E. Muir, Dr. H. W. Wade, Dr. C. B. Lara, Sir Leonard Rogers (Tropical) and other speakers.

FRIDAY.—5 P.M., LARYNGOLOGY. (Cases at 4 P.M.) Cases will be shown by: Mr. Walter Howarth, Dr. Dan McKenzie, Mr. T. B. Layton, Mr. Herbert Tilley, Mr. N. Stuart Carruthers, Mr. Norman Patterson and others. 8.30 P.M., ANÆSTHETICS: Paper: Mr. S. P. Wilson: Physiological Bases of Hypnosis and Suggestion with Special Reference to Anæsthesia.

SATURDAY.—10.30 A.M., OTOLOGY (Cases at 9.45 A.M.): Papers: Dr. C. P. Symonds: Cerebral Abscess, some points in Diagnosis and Localisation. Dr. Farquhar Buzzard: The Treatment of Traumatic Facial Paralysis. Cases and specimens illustrating these subjects will be shown by: Mr. T. H. Just, Mr. C. Gill-Carey, Mr. R. J. Cann, Mr. W. H. Ogilvie, Mr. E. Watson-Williams, Mr. Sydney Scott, Mr. W. M. Mollison, Mr. G. W. Dawson, Mr. R. D. Owen and Mr. T. B. Layton.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 31st, to SATURDAY, Feb. 5th.—FELLOWSHIP OF MEDICINE: Special lecture at the Medical Society, 11, Chandos-street, W., at 5 P.M. on Thurs. Mr. H. W. Carson: Complications of Gall-stones.—

Collapse induration of the lung might also be cured by removal of septic foci

The PRESIDENT remarked on the change that had taken place of recent years; a little while ago the physician had implored aid from all sorts and conditions of people, and neither surgeon nor laryngologist would help him, now they blamed him for not sending these cases to them early enough He thought that the laryngologist's position was the one most likely to come to the fore, since he could form for himself a picture of the disease, which had been quite impossible up to a few years ago Washing out the dilated bronchi appeared to be a promising measure, especially for those serious conditions which sometimes might develop even in a few days

Dr E STOLKIND referred to a case, published by him in 1912, of a child who brought up stinking pus after repeated attacks of pneumonia Cauterisation was unsuccessful, and the autopsy revealed part of a horn ring at the bifurcation of a bronchus He recommended pneumothorax for chronic pneumonia

Mr TUDOR EDWARDS, in reply, said that phrenic avulsion provided permanent cure for those cases which still had fibrosis after pneumothorax and were liable to recrudescence of symptoms It was characteristic of bronchiectasis that collapse of the lung took place slowly, and would never occur at an exploratory operation He did not think Mr Souttar's case was a true bronchiectatic abscess It might be three months before the collapse was complete Phrenicotomy, together with aspiration, might cure some cases when either alone would fail He had had an empyema tube made with a flange so that a negative pressure could be set up at once

Mr MARTIN, replying, said that lipiodol could be injected into an abscess through the bronchoscope If it were introduced per os or through the cricothyroid membrane it met such a pressure of air in the trachea that the oil was broken up into tiny droplets which would stick on any little abrasion, giving the appearance of a cavity Bronchoscopic injection then gave quite a different appearance

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FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —On Thursday, Feb 3rd, at 5 P M, Mr H W Carson will give a lecture on Complications of Gall-stones This is the second lecture of the series on Emergencies in Medicine and Surgery A special demonstration in clinical surgery will be given by Mr H J Paterson at the London Temperance Hospital on Monday, Jan 31st, at 2 P M., and on Thursday, Feb 3rd, at 5 P M, at the Royal Westminster Ophthalmic Hospital, Mr Elmore Brewerton will speak on Non-Paralytic Squint and its Treatment At the Royal Northern Hospital on Tuesday, Feb 1st, at 3.15 P M. Dr W H McKinstry and Dr P O Ellison will give a demonstration on Laboratory Methods in Clinical Medicine All these lectures and demonstrations are open to members of the medical profession without fee On Monday, Jan 31st, St John's Hospital will begin a four weeks' course in dermatlogy Daily instruction will be given and lectures will be held on Tuesdays and Thursdays Practical pathological demonstrations can be arranged, the fees being £1 1s for the clinical course and lectures and £4 4s for the pathology The London Lock Hospital is holding a four weeks' course in Venereal Disease, from Feb. 7th to March 5th, consisting of clinical work daily in the afternoons and evenings and special lectures at intervals (fee £3 3s) On Feb 7th an all-day course in Children's Diseases will begin at the Paddington Green Hospital and the Victoria Hospital for Children (fee £3 3s) From Feb 21st to 25th the Royal Northern Hospital will hold a practitioners' course in General Medicine and Surgery, with sessions at 2 15–3 15 P M daily There is no fee for this course The Special Courses in March will include the following Diseases of the Chest, the Brompton Hospital, all day, fee £4 4s; Diseases of Children, Queen's Hospital, all day, fee £3 3s, Gynæcology Chelsea Hospital for Women, mornings and/or afternoons, fee £5 5s, Ophthalmology, Royal Eye Hospital, afternoons, fee £1 1s, Orthopædics, the Royal National Orthopædic Hospital, all day, fee £2 2s, and a practitioners' course at the London Temperance Hospital, late afternoons, fee £1 1s Practical courses in Anæsthetics and Obstetrics can be arranged and arrangements can be made for clinical assistants Syllabuses of the Special Courses, the General Course Programme, and copies of the *Post-Graduate Medical Journal*, may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

Medical News.

UNIVERSITY OF WALES —At examinations in the undermentioned subjects the following candidates have been approved —

Medicine —1924* Ann Ceinwen Evans, Florence May Wallen. 1927 Thomas Jones (Clydach)

Surgery —1926* Ann Ceinwen Evans, Thomas Jones, and Florence May Wallen 1927 One candidate satisfied the Examiners, but, in accordance with the Regulations publication of the name is withheld pending completion of the qualifying scheme for the degrees of M B, B Ch

Obstetrics and Gynæcology —1926* Thomas Jones

Obstetrics and Gynæcology —1927 Ann Ceinwen Evans, Florence May Wallen, and one other candidate

*Supplementary list

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, and ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW — The following candidates have passed in the whole or part of the Triple Qualification Examination —

FINAL EXAMINATION

Eric Alva Ynyr MacKeown, Amolak Singh Arora, Henry William Bambridge, Hector Timothy Joseph Abeyesundere, Siva Ratnam Carthegasam, Emma Hughes, Abdalla Abdel Razzak, John Hubert Sturges, Robert Jordan Ormsby, Arthur Mahavidane Kulatillake, Samuel Caller, Robert Gordon Paul, Elias George Marcus, Edward Patrick Kelly, Lucy Winifred MacDougall, Don Francis Jayamaha, Ian Gordon Sutherland Hyman Taylor, Bennet Austen Van der Gert, Robert Robertson MacGibbon, Aly Kouchouk, Harold George Hebard, Ronald Alexander Paton, Charles Frederick Schilling, Archer Wilson Dunn, Donald Ross, Owain ap Vychan Jones, Lamahewage Martin de Silva, Sarukkali Patabendige Bandulasena Gunawardena, Patrick John Bourke, and Samson Amarsairi Gunawardana

Medicine —Vishveshvar Nath, John Williams, John Hall, Orry Smedley Crowthers, Joseph Eugenius Didacus Mendis, James Thambviah Amarasingham, Abran Basil Gilston, John James Craig, Reuben Abrahams, Jayawickrema Simon Fernando, and Kripa Ram Bali

Surgery —Atal Behary Paul, Orry Smedley Crowthers, Matthew Clayton-Mitchell, John Drummond Cooper, Thomas Galbraith McIntyre, John James Craig, and Kanakkumar Dhar

Midwifery —Atal Behary Paul, Vishveshvar Nath, John Williams, James Gilchrist, John Hall, Mohamad Mahmoud Farghaly, Orry Smedley Crowthers, Matthew Clayton-Mitchell Thomas Galbraith McIntyre, Alexander Lipschitz, Jayawickrema Simon Fernando, Daniel Joseph McKenna, and Kripa Ram Bali

Medical Jurisprudence —Alexander James Pinkerton, Douglas James Campbell, Sunderdas Tulsidas Sodah, Norman Webster Laing, Reginald Andries Ferdinand Maasdorp Saunders, John Pullar Logan, William Moodie Violet Dorothy Hunter, Robert Gow McInnes, James Williamson Galloway, Ian MacGilvray Chisholm, and Nutting Stuart Fraser

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE — The second lecture on the History of Medicine will be given by Dr Charles Singer, of University College, London, at the College of Medicine, Newcastle-upon-Tyne, on Friday, Feb 11th, at 4 45 P M All medical practitioners in the neighbourhood are invited to attend

SOCIETY OF MEDICAL OFFICERS OF HEALTH —An Infant Welfare Conference is to be held at Newcastle-upon-Tyne from Feb 10th–12th under the auspices of the Society's Maternity and Child Welfare Group Dame Janet Campbell, senior medical officer to the Ministry of Health, will preside, and amongst those who will take part are Dr A F G Spinks, Dr H Glen Davison, Dr J A Stephen, Dr T Y Findlay, Mr F C Pybus, Dr Mabel G Brodie, and Mr Harvey Evers The Lord Mayor and Council will entertain the conference to luncheon on Feb 11th, and there will be visits to child welfare centres and other institutions in the neighbourhood Any practitioner wishing to attend the whole or part of the conference should communicate with Dr A F G Spinks, 20, Victoria-square, Newcastle-upon-Tyne, who is in charge of the arrangements

NATIONAL HOSPITAL, QUEEN-SQUARE —A Post-Graduate Course on Diseases of the Nervous System will be held at the hospital from Jan 31st to March 25th. It will consist of clinical lectures and demonstrations, teaching in the out-patient department, and pathological demonstrations, and the fee will be 5 guineas A course of lectures on the Anatomy and Physiology of the Nervous System will be arranged if there are sufficient applicants (fee 2 guineas), and there will also be a series of clinical demonstrations, chiefly on Methods of Examination of the Nervous System (fee 2 guineas) Tickets entitling the holder to attend the out-patients' clinic only (2 guineas for three months) may be had from the Secretary, and a limited number of students can be enrolled as ward clerks Applications should be addressed to the Secretary of the Medical School, National Hospital, Queen-square, London, W C 1

Notes, Comments, and Abstracts.

THE USE OF THE SOY BEAN IN HUMAN NUTRITION

BY T R PARSONS, M A CAMB , B SC LOND ,
ASSISTANT PROFESSOR FOR MEDICAL RESEARCH, THE MCGILL UNIVERSITY CLINIC, ROYAL VICTORIA HOSPITAL, MONTREAL, CANADA

THE requirements of a diet that shall be adequate for the nutrition of human beings may be stated very concisely The food must include sufficient of a well-balanced mixture of carbohydrates and fats to provide by its oxidation all the energy required for both the internal basal processes of the body and for the external physical work that the body performs , it must contain also sufficient of such proteins as on digestion yield in appropriate proportions the amino-acids that the tissues require for the replacement of their loss during "wear and tear" and for any growth that may be taking place , and lastly, it must contain small but sufficient quantities of the vitamins and salts necessary for continued health In actual practice, of course, the diet of an individual is determined not merely by physiological considerations such as these, but also by economic considerations of the relation between the cost of various foods and his own earning capacity In recent times this sociological aspect of the problem of nutrition has claimed a certain amount of attention, and a considerable mass of useful information relative to the economic as well as to the physiological foundations of the science of dietetics has been lately collected together in a very available form by Mottram [1] It is the object of this article to supplement this information by giving similar particulars for a foodstuff that promises to rival all others not only with regard to physiological nutritive value, but also as regards economic availability

Source and Properties of the Bean

The soy bean has been known in China for thousands of years, but it is chiefly in Manchuria that its cultivation has developed during the last half century. From here it is exported in enormous quantities to China and Japan, where it plays a part in the national nutrition commensurate with that played by rice This fact in itself would suggest that the bean contains materials of very definite value for the maintenance of the human body, and this suggestion is borne out by the results of chemical analysis and physiological experiment

Chemical analysis shows that on an average the soy bean contains 35 per cent of protein, 18 per cent of fat, and some 27 per cent of water-soluble non-nitrogenous extractives which are mostly dextrins and sugars The percentage of starch is surprisingly low, amounting to only 0 5 in the ripe bean The fat is characterised by a relatively high percentage of lecithin A glance at these figures is sufficient to reveal the fact that soya is a veritable "wonder plant" for a seed of such composition would appear to constitute a foodstuff of extraordinary physiological value and completeness And feeding experiments with animals have confirmed this view

McCollum [2] states that the proteins of the soy bean are distinctly more valuable from the point of view of nutrition than are those of other legumes such as the pea, but claims that the soy bean proteins are no better than those of cereals when fed *only* in such quantities as those in which cereal proteins, on account of the large amounts of fermentable carbohydrate that grains contain, can be administered But other workers, in particular Daniels and Nichols [3] and Osborne and Mendel,[4] who have made a special study of the soy bean, have come to the conclusion that the soy bean proteins are quite exceptional among the proteins of leguminous seeds in general in being completely *adequate for* normal growth and reproduction and rearing of young The first-named authors concluded that the proteins of soya are quite as valuable as the casein of milk, and they all *point* out that the soy bean seems further to be unique among seeds in containing both fat soluble and water-soluble growth-promoting vitamins Its ash is deficient in calcium and in chlorides, and although these can be readily supplied from other sources this fact has to be borne in mind in feeding experiments in which the bean is used

Its Employment as Food

In spite of these *promising* results in animal experiments it must be admitted, however, that the attempts made up to the present to popularise the soy bean as a staple article of diet for Europeans have met with little or no success One such attempt was made in Germany during the late war but it was found that the *consumption* of the beans in quantities sufficient to supply the nutritional needs of man led to digestive disturbances and other disagreeable after-effects, so that the diet could not be tolerated for any length of time (Lüthje) [5] In these experiments the beans were served after prolonged boiling as is usually the case with other leguminous foodstuffs The reason why the Eastern peoples, who regularly consume large quantities of soya, do not experience the same disagreeable symptoms is probably that they eat the beans only after they have been subjected to a process of fermentation lasting several months, during which period the constituents that are responsible for the harmful effects are decomposed But the resulting product is not one that appeals to the general European palate At the present time, therefore, the soy bean is used in this country chiefly as a source of vegetable oils and as a cattle food The only application it finds for human nutrition is in the preparation of the condiment to *which it gives its name*

Recently however, the problem of the utilisation of the valuable constituents of soya for human food has entered on a new phase, for Berczeller, working in Vienna, has devised a special process of milling combined with fractional distillation whereby the obnoxious constituents can be removed and a meal of high nutritional value obtained This special soya meal forms a slightly yellowish flour of agreeable and appetising appearance and a faint almond-like taste It differs from the product obtained by the simple milling of the bean in its complete freedom from bitter flavour and in its capability of being stored practically indefinitely without turning rancid From the following table giving the composition of the new meal it will be seen that the nutritional value of the bean is completely retained *in the milled product* —

	Per cent in the dried flour
Raw protein	45 50
Protein soluble in pepsin-hydrochloric acid	40 75
Fat	22 38
Lecithin phosphoric acid	0 145
Non nitrogenous extractives (sugars, &c)	27 16
Ash	4 31

The meal as ordinarily obtained contains 8 97 per cent of moisture Berczeller has shown [6] that animals fed exclusively on soya products show a marked preference for this new meal over the whole untreated beans and also over ordinary soya meal, and he found further that the animals that showed the longest duration of life under his experimental conditions were those that consumed the largest quantities of the new product

Relative Cost

The problem of rendering available for human nutrition the stores of valuable materials contained in the soy bean appears thus to be solved. It remains now to consider the economic factor mentioned in the opening sentences of this article and to determine the cost of this new product as compared with that of other staple foods The price of the soy bean was quoted recently [7] at £11 2*s* 6*d* a ton in Hull From this figure we estimate the cost of the new flour as follows —

	£	*s*	*d*
Cost of one ton of soy bean in Hull	11	2	6
15 per cent loss in milling	1	13	4½
Cost of milling	4	0	11
Wholesale price per ton of soya flour	16	16	9½
Add 20 per cent for retail price	3	7	4
Retail price of soya flour per ton	20	4	1½

which works out at less than 2¼*d* a pound

Now the energy value of this flour has been found to be 4730 calories per kilo, this high value being determined mainly by the large percentage of fat that the material contains If we take 3*d* a pound as a maximum retail price we find that the cost of 1000 calories in the form of soya meal is just less than 1½*d* For comparison with this figure we quote from Mottram's tables the following data, which include all the common articles of diet that provide 1000 calories at present-day English prices at a cost less than 3*d* —

Food	Cost per 1000 cals	Food	Cost per 1000 cals
	d		*d*
Vegetable margarine	2¼	Bread, brown	2¼
Oatmeal	1½	,, germ	2½
Rice	2½	,, white	2
Wholemeal	1¼	Sugar	2¼
White flour	1¼–1½	Haricot beans	1¼
Macaroni	2½	Peas dried	2½
Spaghetti	2½		

From these figures it will at once be seen that the only serious competitor of the new product with regard *to* cheapness of calorie is furnished by haricot beans, that the soya calorie is slightly cheaper than that of wheat flour, and that it is very decidedly cheaper than the calories furnished by the other fat and carbohydrate foods from which we ordinarily supply our energy needs

When we consider soya meal from the point of view of the supply of the 30 g of biologically suitable protein that the adult human organism *requires per day* the economic

*LONDON TEMPERANCE HOSPITAL, Hampstead-road, N W Special Clinical Surgery demonstration on Mon at 2 P M, by Mr Herbert J Paterson —*ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross W C Special clinical ophthalmic demonstration at 5 P M, on Thurs by Mr Elmore Brewerton, on Non-Paralytic Squint and its Treatment —BETHLEM ROYAL HOSPITAL, S E Tues and Sat, at 11 A M, Lecture-Demonstrations on Psychological Medicine —NATIONAL HOSPITAL, QUEEN SQUARE, W C Special Course in Neurology Daily instruction and special lectures Further information from the Fellowship Secretary

*Open to all members of the medical profession without fee

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY, Jan 31st —10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical, and Gynæcological Clinics Operations

TUESDAY, Feb 1st —2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations

WEDNESDAY —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations

THURSDAY —11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical Surgical, and Ear, Nose, and Throat Clinics Operations

FRIDAY —10 30 A M, Throat, Nose and Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, Jan 31st —10 A M, Mr MacDonald Genito-Urinary Operations 2 P M, Mr Addison Surgical Wards 4 P M, Mr Tyrrell Gray Peritonitis and Obstruction

TUESDAY, FEB 1st —10 A M, Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M, Mr Sinclair Surgical Out patients

WEDNESDAY —10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Out patients 2 30 P M, Mr Armour Surgical Wards

THURSDAY —12 noon, Mr Simmonds Demonstration of Fractures 3 P M, Sir Henry Simson Gynæcological Wards 4 P M, Dr Snowden The Conversion Neurosis

FRIDAY —11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out-patients 2 P M, Mr Vlasto Throat, Nose, and Ear Department

SATURDAY —9 30 A M, Dr Burnford Bacterial Therapy 10 A M, Mr Banks-Davis Operations of the Throat, Nose, and Ear

Daily —10 A M to 5 P M, Operations, Medical, Surgical, Special Out-patient Departments (Saturdays 10 A.M to 1 P M)

POST-GRADUATE HOSTEL, Imperial Hotel, Russell-square, W C

MONDAY, Jan 31st —6 30 P M, Annual Meeting of Vice-Presidents and those interested in Post Graduate work 9 P M, Sir Arthur Robinson Our Duty to Colonial Visitors

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, *Queen-square, W C*

MONDAY, Jan 31st —2 P M, Dr Hinds Howell Out-patient Clinic 3 30 P M, Dr Riddoch Some effects of Head Injuries

TUESDAY, Feb 1st —2 P M, Dr Walshe Out patient Clinic 3 30 P M, Dr Risien Russell Syphilis as it affects the Nervous System

THURSDAY,—2 P M, Dr Kinnier Wilson Out patient *Clinic* 3 30 P M, Dr Walshe Polyneuritis

FRIDAY —2 P M, Dr Adie Out-patient Clinic 3 30 P M, Mr Elmquist Demonstration of re-education methods in Exercise Room

HOSPITAL FOR SICK CHILDREN, Great *Ormond* street, W C

THURSDAY, Feb 3rd —4 P M, Mr Higgins *Demonstration* of Surgical Cases

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE

TUESDAY, Feb 1st —3 15 P M, Dr W H McKinstray and Dr P O Ellison Demonstration of Laboratory Methods in Clinical Medicine

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, Leicester square, W C

TUESDAY, Feb 1st —5 P M, Dr S E Dore Alopecia

THURSDAY —5 P M, Dr A M H Gray Xanthoma Herpes

ROYAL DENTAL HOSPITAL SCHOOL OF DENTAL SURGERY, Post-Graduate Lectures

WEDNESDAY, Feb 2nd —5 30 P M Dr E W Fish Art and Stability in Full Denture Prosthesis

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester

WEDNESDAY Feb 2nd —4 15 P M, Dr N C Haring Tuberculosis

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

MONDAY, Jan 31st —6 P M (at the Medical Society of London, 11, Chandos street, W) Prof H E Roaf Anatomy and Physiology

UNIVERSITY OF SHEFFIELD POST GRADUATE CLINICS, (at the Royal Hospital)

FRIDAY, Feb 4th —3 30 P M Mr Graham Simpson Surgical Cases

Appointments.

BROCKLEHURST G L, M B B S Lond, has been appointed Medical Officer of Health for Canterbury

CALLUM, A, M D, Ch B Aberd, and MACKENZIE, J A, M B, Ch B Aberd, Honorary Surgeons to the Victoria Hospital, Burnley

EVANS MARY, M B, Ch B, D P H Manch, Assistant Medical Officer of Health for Hyde

JENNINGS, N, M B, Ch B Edin, Surgeon to the Hull Trinity House

STEEL, J P, M B Ch B Edin, Assistant Medical Officer of the Cleveland Mental Hospital, Middlesbrough

Vacancies.

For further information refer to the advertisement columns

Adelaide University, South Australia —Elder Professorship of Anatomy £1100

Aylesbury, Royal Buckinghamshire Hospital —Secry £300

Banchory Sanatorium —Med Supt

Birmingham General Hospital—Med Reg and Res M O £155.

Bolingbroke Hospital, Wandsworth Common, S W —H S At rate of £120

Bradford, Municipal General Hospital, St Luke's —H P s and H S 's Each at rate of £200

Bradford Royal Eye and Ear Hospital —H S £120

Bristol Dispensary —Non-Res M O

Bristol Eye Hospital —H S £150

Cairo University —Prof of Bacteriology £E 1500

Cambridge, Addenbrooke's Hospital —Hon Asst P for Electrical and X Ray Dept

City of London Hospital for Diseases of Heart and Lungs, Victoria Park E —Asst S

Colchester Essex County Hospital —H P Also Asst H S £150 and £120 respectively

Coventry City —Asst School M O £600

Derby Derbyshire Education Committee —School Dentist £500–£550

Elizabeth Garrett Anderson Hospital, 144, Euston road, N W — Children's P

Gloucester, Gloucestershire Royal Infirmary —H P and Asst H S At rate of £150 and £120 respectively

Home Office, Whitehall, S W —Medical Inspector of Factories, £600, with bonus

Hospital for Sick Children, Great Ormond-st, W C —Cas O £400.

Indian Medical Service —Special Recruitment, 1927

Inverness, Northern Infirmary —Sen H S £120

Liverpool County Borough —Jun Asst Sch M.O £600

London Jewish Hospital, Stepney Green, E —Asst S to Ear, Nose and Throat Dept

National Hospital, Queen square W C —Registrar £200

New Zealand, Mental Hospital Dept —Sen Asst M.O 's At rate of £775

Northampton General Hospital —Two H S 's Each at rate of £150.

Oldham Royal Infirmary —H S At rate of £200

Oswestry, Shropshire Orthopædic Hospital —Jun H S £150–£250.

Queen's Hospital for Children, Hackney-road, E —Cas O At rate of £100

Rochester, St Bartholomew's Hospital —H P At rate of £200.

Royal Free Hospital, Hunter street, W C —Registrar £[illegible]

St Thomas's Hospital, S E —Surg to Out patients Also Res Asst S

Shrewsbury, Berrington Hospital —Asst Res M O £200

Shrewsbury, Royal Salop Infirmary —H S £250 Also H.P £160

Southampton, Royal South Hants and Southampton Hospital — Hon Asst P

Southampton County Borough —Asst M O H £600

South Shields, Ingham Infirmary —Jun H S £150

Stafford, Staffordshire General Infirmary —H P At rate of £150.

University College Hospital Medical School, University street, Gower street W C —Demonstrator in Bacteriology £250

Walthamstow Hospital for Infectious Diseases, Chingford —Res M O £300

Willesden Urban District Council —Asst M.O £600

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Walsall (Staffs), Portsoy (Banffshire) Rhynie (Aberdeenshire), Fenny Stratford (Bucks), and Dumbarton (Dumbartonshire)

Births, Marriages, and Deaths.

BIRTHS

COOPER —On Jan 21st, the wife of Gerald K Cooper, M B, of Rotherwick road, N W, of a daughter

MARRIAGES

BARNARD—POLLOCK —On Jan 20th, at St George's, Presbyterian Church, Bexhill on Sea, James Miller Barnard, M B, B S Lond, to Winifred Pollock, M R C S L R C P elder daughter of Mr and Mrs John Pollock The Red House Bexhill-on Sea

DEATHS

BAKER —On Jan 20th, at the Middlesex Hospital, A de Winter Baker, M R C S, L R C P of Dawlish Devon, aged 74

HOLMES —On Jan 17th, at The Grove, Etwall, Derby, Alfred Hewston Holmes, M D aged 69

N B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

An Address
ON THE
VOLUNTARY HOSPITAL AND ITS FUTURE

Delivered in the Albert Hall, Nottingham, on Jan 30th, 1927,

By R G HOGARTH, C B E, F R C S Eng,
PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION,
SENIOR SURGEON, GENERAL HOSPITAL, NOTTINGHAM

The very name of Hospital Sunday reaffirms the intimate connexion between religion and medicine which is almost as old as history itself The common link is faith Religion without faith is unthinkable Medicine without faith loses half its healing power

The Healing Power of Faith

Faith, therefore, is no new thing in medicine It was once said "He cures most in whom most have faith" The sufferer who casts his cares upon his doctor rids himself of a grievous handicap Instead of obstructing the healing influence by his doubts and fears, he becomes submissive to it and may even quicken its work Hope vanishes when faith is checked But faith in what? The choice is wide It may be faith in the bottle of medicine It may be faith in the little pill It may be faith in the healing efficiency of water, hot or cold It may be faith in the well advertised virtues of a patent medicine It may be faith in a saint, or faith in a system, or faith in a book, or faith in a revelation It may be faith in a master to whose message the ears of thousands are attuned while millions hear it not Or it may be—such are the wonders of faith—faith in some plain, humble doctor in a poor neighbourhood who for a generation has gone about his business—and the Master's—of healing, unknown beyond the short radius of his daily activities but within it respected, trusted, loved Or lastly, it may be that faith in faith itself, best understood in the churches, where the injunction, "only believe," has exercised on quiet, receptive minds a soothing influence of healing, which passes the surface comprehension of the cynic, but not the deeper understanding of the wise

And now, lest you should think that I am leading you down rather vague and misty paths, I will ask you as earnestly as I can for your active, positive faith in something which happily combines in itself many of the objects towards which faith is directed I mean, of course, that great composite and complex institution, the general hospital

If you must have personality in which to believe, you will find it there on the hospital and nursing staffs If you crave the strengthening atmosphere of place, which on the religious side you expect in shrine or temple, where is it better found than in the hospital from whose doors so many have gone forth healed and rejoicing? We do not hang our trophies on our walls, for trophies harbour dust and dust is forbidden by the modern laws of health, but the records stand and are known, and the healed give us good report among their fellows And if you desire, as who does not?—the comfort of hope to steady the shrinking of fear, from whose lips does it better proceed than from those of the doctor, who, subject himself to human infirmities, knows *too much* of pain to be niggardly of reasoned assurance and the salutary stimulus of measured encouragement?

The Ideal Hospital

Perhaps you may think it strange if I go back 400 years for a definition of the ideal hospital Yet where is there a better than Sir Thomas More's, who in his "Utopia" conceived the hospital of his ideal city state to be so well appointed that "though no man is sent thither against his will, there is no sick person in all the city that had not rather lie in the hospital than at home in his own house"

Consider what the hospitals were like when those words were written They were the refuge of the destitute and the plague-stricken At best they provided little more than a roof over the sick man's head and a mattress on which he might lie Nursing there was none, and the medical art of the time was as often a hindrance as a help to recovery Horrible contagions throve in the dark and reeking corners of the wards The idea, therefore, of a hospital, worthy of its name as a Guest House where God's sick and poor are healed, and so garnished and equipped that even the rich would rather lie there than at home, may well have seemed preposterous to More's contemporaries Even to-day it requires something of an effort to break away from current conceptions, still far too circumscribed, of the function and scope of a general hospital

The General Hospital

So I invite you to conceive of your own general hospital here in Nottingham, as the hospital of the whole community in the wide area which it serves Conceive it as the hospital, not of the poor alone, nor yet of the poor and the wide range of middle classes, but of all classes who are sick—all who care to use it, with no distinction of rich and poor That is a new interpretation of the term—"General Hospital" and, with your permission, I will develop the idea But I must guard against a dangerous misconception I am not proposing to rob the poor of the least part of the birthright bequeathed to them by a long line of magnanimous benefactors I say emphatically that, while you open the hospital door much wider to other classes, you must not close it one inch in the faces of the poor The full freedom of the general hospital to the sick poor is the very origin and foundation of the voluntary system For the poor, the healing given by the hospital must still be without money and without price. But why, if nothing but the best is good enough for the poor, should less than the best be offered to others? Thus, while still maintaining the most generous definition of the poor and their poverty, I would ask all the rest to contribute to the hospital in proportion to their means, with payments graded, not merely according to the total figure of the family income, but to the figure of its necessary expenditure, which, as you know, is usually a wholly different thing

Payment for Hospital Treatment

No new principle is here involved Payment for hospital treatment is already much more widespread than is commonly supposed A recent official report has shown that 171 provincial hospitals, of which 27 are large institutions, make some provision to meet what is well described as the insistent demand for paying beds The methods adopted vary widely. In some the payment is still disguised under the form of a thank-offering Patients are told exactly what the cost of their maintenance has been and then they are invited to give as generously as they can I will only observe that no Chancellor of the Exchequer would dream of applying such a system to the Income Tax unless he was prepared for a gigantic deficit In the hospitals it produces a useful but quite inadequate amount

You will remember the poignant question in the New Testament, when, after the healing of the ten lepers, only one returned to give thanks—"But where are the nine?" I will not say that gratitude in the hospitals is expressed in the same unsatisfactory proportion But you can well understand what happens A patient who would cheerfully pay £100 to be cured when the pain is sharp upon him begins to think, as soon as the pain is gone that perhaps he never was quite as bad as he feared, that Nature unaided might have healed him had he but left the cure to her, that £100 is a lot of money, that others are much better able to pay than he, that hospitals, advantages of a soya diet become even more striking Again, taking 3*d* a pound as the retail price of the new flour, and assuming that this as bought contains 36 per cent of protein, it is easily calculated that the cost of the daily ration of 30 g of protein is approximately ½*d* And again quoting and calculating from the data given by Mottram we give the following figures for comparison —

Food	Cost of 30 g protein	Food	Cost of 30 g protein
	d		*d*
Beef (imported)	4½–5	Milk	5½
Lamb ,,	4 –4½	Cheese	4¾
Mutton ,,	3 –5½		
		Bread, white	2½
Cod	5½	Oatmeal	1½
Haddock	5	Flour, white	1¾
Herring, fresh	2¾	Haricot beans	½
,, kippered	4½		

Again, we find that the haricot bean is the only food that can supply proteins at a cost approximating in cheapness to that of the soya meal The proteins of oatmeal cost three times and those of bread five times as much But it must be remembered that in the case of the haricot bean we have calculated the cost from that of the whole unmilled seed and also that there is no evidence that the proteins of this seed possess the unique biological value demonstrated for those of the soy bean in the experiments of Osborne and Mendel and of Daniels and Nichols already referred to It is well known that the proteins of the cereals are deficient in this respect

Conclusion

The considerations put forward in this article suggest very strongly the desirability of instituting a large-scale investigation of the possibilities of an article of diet whose introduction bids fair to constitute an even greater advance in the problem of national nutrition than was occasioned by the introduction of the potato as a staple food, and of thus providing an opportunity for the realisation of the prophecy made many years ago by Haberlandt [8] that the carbohydrate stores of the potato would ultimately come to be supplemented in the diet of at least the poorer classes by the proteins and fats provided in such abundance by the soy bean

References

1 Mottram, V H Food and the Family, London, Nisbet, 1925
2 McCollum, E V, Simmonds, N, and Parsons, H T Jour Biol Chem, 1919, xxxvii, 157
Same author The Newer Knowledge of Nutrition, New York, The Macmillan Company, 1920
3 Daniels, A L, and Nichols, N B Jour Biol Chem, 1917, xxxii, 91
4 Osborne, T B, and Mendel, L B Ibid, 1917, xxxii, 369
5 Lüthje Gross Einkäufer für Reederei und Industrie (Hamburg), No 48–49, March, 1915
6 Bereczeller, L Biochem Zeitschr, 1922, cxxix, 313
7 Manchester Guardian Commercial, Oct 27th, 1926
8 Haberlandt Die Soja Bohne, Vienna, 1878

MEDICAL INSTRUCTION FOR MISSION WORKERS

Livingstone College, in Leyton, continues its valuable work of instructing missionaries of all denominations and nationalities in the elements of healing and hygiene The lecturers teach elementary physiology and anatomy, practical medicine and surgery and tropical medicine In addition to the regular courses, which occupy nine, six, or three months, there is a four weeks' vacation course in July and three three-day courses every year on the care of health in the tropics Seventy-seven students attended during the year 1925–26, seven of these taking the full session The College paid its way except for about £35, and the receipts totalled £57 more than the year before The value of even a little sound medical training to a worker among primitive people is enormous, as anyone knows who has lived in the tropics and seen the reverence with which the natives regard a person who can cure their yaws, splint their fractures, and dress their spear-wounds The missionary societies heartily commend the work done at Livingstone, and those interested in the progress of tropical dependencies could hardly support a better object

THE PHOTOGRAPHIC ANNUAL

PHOTOGRAPHY is taking year by year an increasing place in the study of medicine Radiology is largely dependent upon it and microphotography has received a great impetus now that it is known that the photographic plate may reveal structures not appreciated by the retina A proportion of medical men and women will, no doubt, be willing to accept technical help without becoming expert themselves, but radiology and microscopy will be advanced by those who are skilled in photographic technique We have just received the sixty-second annual issue of the *British Journal Photographic Almanac*, which contains an epitome of progress during the past year both in materials and methods, together with working details of practically every photographic process with which the keen worker is likely to come in contact. The addition of a selection of the best exhibition pictures of the year, produced in photogravure, enhances the value of the almanac, which is published at 2*s* by Messrs Henry Greenwood and Co, 34, Wellington-street, London, W C 2

A BOARD OF GUARDIANS' DECISION

AT a recent meeting of the Romford Board of Guardians there was a discussion upon the recommendation of the Hospital Committee that Dr W S O'Loughlin, medical superintendent of the Oldchurch Hospital, should be allowed to place his name on the list of the Essex Insurance Committee as a panel doctor for the resident staff The Ministry of Health had been consulted and had sent particulars as to the position Mr H C Price said he thought it was only right that the superintendent should receive the fees for this work At the present time others were getting the money, while he was doing the work, and the Board had to find the drugs for nothing Under the new proposal the guardians would be none the worse off and the doctor would be a little better off, while they would also be paid for their drugs Mr W H Goodchild expressed the opinion that as the doctor was a whole-time officer the money received in respect of panel patients should go into the Guardians' exchequer, and he proposed that this be done Mr J A Parrish seconded The Chairman, Mr E G Bratchett, thought Dr O'Loughlin should have the fees They could not compel him to do the work After further discussion it was decided that the guardians should have the fees

BAY MOUNT, PAIGNTON

THE Fourth Annual Report (1925) of this institution for the cure of alcoholics, drug addicts, and neurasthenics shows that Dr Stanford Park's energy and initiative are bearing fruit Bay Mount was designed only for seven patients to ensure the fullest possible individual attention, but so many suitable patients were turned away that in 1925 an annexe was built for seven more, and the medical and nursing staffs were increased The home was, therefore, able to admit 37 new patients in the year All but four were men. Twenty-six were alcoholic cases, four were drug-takers, four neurasthenic, and three addicted to both drink and drugs. Sixteen had been in homes before Defining "cure" as the removal of all alcoholic craving so that it will not return unless stimulated by alcohol, Dr Park claims to have cured in 1925 91 per cent of the patients classed on admission as probably curable, and 47 per cent of those classed as probably incurable Even old chronic cases who only came to be "patched up" have given very good results The medicinal treatment consists of hypodermic injections combined with bitter tonics every two hours Dr Park has no faith in the atropine method and is giving more and more attention to the psychological aspect and to providing occupation and interest for each individual patient All the neurasthenics and five out of the seven drug cases did well Elderly drug addicts suffer little, it is found, during reduction, but tend to manifest great sexual excitement and loss of emotional control afterwards

DOGS AND RESEARCH

THE Royal Society for the Prevention of Cruelty to Animals allows itself occasionally a vivacity of propaganda which is too much for some of its more reasonable supporters It is now exploiting to the full the conviction of a man at Bow-street last November for feloniously receiving two Irish terriers, though it is not able to congratulate itself upon the success of subsequent and similar proceedings against a member of the University College staff A photograph of the two terriers now appears upon a leaflet circulated by the Society as an invitation for signatures to a petition to Parliament for the grant of facilities for the passing of the Dogs' Protection Bill The leaflet is headed "Dogs Stolen for Physiological Research Purposes" There may be prospective signatories whom this leaflet will persuade to believe that research workers take an active interest in violating the laws of larceny It may still be worth while to reiterate that experiments upon animals are conducted only under Government licence and only by approved persons in approved places, they are subject to independent inspection by Government officials, who have reported that they are conducted with humanity, finally, they have contributed materially and at many points to the alleviation of human suffering

MANCHESTER ROYAL EYE HOSPITAL —The number of out-patients treated at the hospital during 1926 was 31,066, a decrease of 424, and of the number in-patients 2371, a decrease of 22 as compared with 1925 The average number of accidents dealt with daily was 23 hospitals, which have special difficulties of their own, must not be confounded with the problem in the provinces

And what is the secret of this happy transformation? It is due mainly to the development of various contributory schemes into which, unfortunately, I have no time to enter, to better the organisation of workmen's contributions through their voluntary levies, and to the Hospital Savings Association and to the spread of the popular Hospital Saturday and Hospital Sunday movements Not many years ago the bequests of the rich philanthropists and the annual subscriptions of the charitable were the mainstay of the hospitals They are so no longer It is not that rich benefactors give less, but that thousands of workmen now contribute their weekly pence We have had many superb individual gifts in Nottingham, but the penny beats the pound every time when it rolls in by the million, and in the large provincial hospitals the income derived from the various kinds of contributory schemes is now double that of any of the four principal items of income In our own county for example, the contributions of the miners alone amounted in 1925 to £9530 Last year's returns will show, I fear, a serious falling off owing to the long stoppage in the industry, but I am confident that the Nottingham Hospital has no permanent source of income more assured and stable than that of the miners' levy

Believe me, the key word of the future is still voluntary contribution, which to my ear has a nobler and more humane sound than either tax or rate It involves, I know continuous effort on the part of a large band of voluntary workers But though hospital workers may grumble at times and wonder why they go on, when others selfishly do nothing, they have their reward, which they deeply treasure in their hearts though they may not often speak of it aloud In a rather disillusioned world unselfish enthusiasm may become increasingly difficult to kindle But the voluntary hospital, always advancing sure of its goal, producing immediate as well as distant results, cheerful amidst suffering, mending the broken, restoring the rhythm of life to the sick, helpful always and invariably sympathetic, has never lacked good and loyal friends to champion its cause. Nor will it lack them in the days to come

It is not unlikely that the friends of the voluntary hospitals have an anxious time before them in the near future in connexion with the approaching reform of the Poor-laws and the substitution of new public health committees of town and county councils for the existing boards of guardians It looks as though the voluntary hospitals may be invited—happily there is no suggestion of compulsion—to place themselves under the direction of these public health committees, which would naturally take over control of the Poor-law infirmaries, and to receive in return additional grants of public money Until the actual scheme is produced it would ill become me to pass judgment in advance, but I am bound to say that the implications are a little alarming, so far as the independence of the voluntary hospitals is concerned, and the utmost vigilance and caution will be required The freedom of the hospitals is their very life, from their freedom springs the joyous spirit which pervades them and the enthusiasm which their cause inspires

Just one more point as to the future of our Nottingham Hospital It lacks, to my mind, one thing above all for its completion, and that is a medical school and teaching staff. We have, as you know, an infant University, whose buildings are rising grandly above the old meadows of the Trent We have still to kindle among our people a proper civic and intellectual pride in that inspiriting foundation I look forward to the day when Nottingham University will possess amid its other faculties a Faculty of Medicine, and then it will need a medical school at the general hospital Do not, I beg you, consider this a matter of academic interest only. It is not so Every large general hospital should have its medical school attached No hospital fulfils its largest purpose unless it teaches as well as heals Nothing contributes more powerfully towards keeping the resident and consultant staff of a hospital up to the highest mark of efficiency than the critical eyes of a band of eager students, quick to observe the failures as well as the successes of their instructors, and for ever comparing, contrasting and asking the why and the wherefore Doctors, like other people, give their best when most on their mettle I must not enlarge on this theme on the present occasion, but I beg of you to consider it as a problem of real importance alike to Nottingham University and to the Nottingham General Hospital

I ask you to believe, and to believe whole-hearted, in the future of your general hospital Have faith in it, for it deserves your trust There is no one on its staff, in whatever capacity, who does not give the best that he or she has to give I ask you to work for its steady development along the safe, sure lines which have carried it to its present eminence, and to widen its sphere so that it may become a centre for the diffusion of medical and surgical science as well as a temple of healing Above all, let us be content with nothing but the very best for the welfare of all our people, and for the fame of the city and the county to which we are proud to belong

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An Address

ON THE

PENDING CHANGES IN THE ADMINISTRATION OF VACCINATION.

Delivered before the Annual General Meeting of the Association of Public Vaccinators of England and Wales on Jan 28th

BY JAMES BENNETT, M R C S ENG, D P H, J P,

RETIRING PRESIDENT OF THE ASSOCIATION.

PROBABLY no Bill of our time, not even excepting those dealing with Education and National Insurance, has envisaged or encompassed so many possibilities as the suggested Poor-law Reform Bill, and in some form or other it seems certain ere long to become law.

The Rating and Valuation Bill has been passed and is now in operation By eliminating assessment it was probably an essential preliminary to the greater Bill to follow, the necessity being to meet the day-to-day financial needs of the nation as fulfilled by its rates The Government having almost noiselessly eliminated assessment is not likely to yield to the clamour of prejudiced or conservative people who have failed to notice costly overlapping in the present administration of the health services, one of which is vaccination Changes in the control of such services are among the chief objects of the Bill, and so far as vaccination is concerned they are thought by many to be long overdue The suggested alterations in its *administration*, so far as we can yet ascertain, may not be numerous but are exceedingly important to the public vaccinator His position has always been too insecure, and this has probably militated against such open advocacy of the case for vaccination as there might have been had the fear of "creating enemies in council" been less real

VACCINATION AND THE POOR-LAW

Vaccination is a purely preventive measure and has never been regarded as curative Why, then, has it for nearly a century been controlled by a body which, so far as health goes is otherwise solely concerned with cure—in spite of the fact that at the same time we have health authorities at one time entirely, and still mainly concerned with prevention? We must go back to the beginning of Poor-law and after all, were designed to be free, and that if only they were run on business lines the expenses could certainly be cut down And the result of all this hard thinking (and there is plenty of time to think in a hospital bed) is that if he gives £5 it is really all that he can afford The plain moral, I take it, is that there should be a definite contract between hospital and patient as to what the patient shall pay

A GREAT AMERICAN PAYING HOSPITAL

Let us see how they arrange these matters in some of the American hospitals Take that of Detroit, Michigan, where Mr Henry Ford has his famous motor works You will not be surprised to hear that Mr Ford and his family have built and equipped a magnificent hospital with a School of Nursing and Hygiene attached The hospital has 600 beds and an out-patient department with a daily average of 300 patients It is on a similar scale, in other words, to the Nottingham General Hospital The Ford family have spent 10 million dollars on the land, buildings and equipment, and they met the deficit on each year's working till the institution was complete They have shown, as you will agree, a princely spirit of generosity Now, waiving all claim to interest, they expect the patients who receive treatment to pay sufficient to cover current expenses The room charges for board and nursing service vary from 4½ to 8 dollars a day, according to whether the patient shares a room with others or has a private room with bath In addition, he pays from 21 to 70 dollars a week for the professional services of physician or surgeon according to the nature of his case, and there are other charges for X ray or radium treatment and for special nursing if required Even the out-patient department makes a first visit charge of 5 dollars for the routine physical examination and 5 dollars for the routine laboratory examination, and other charges are made at subsequent visits, according to treatment

So it is clear that the Ford Hospital at Detroit is specially designed for the patient who can pay, and if the charges seem to us rather high, allowance must be made for the high wages and salaries of the United States, while if interest had to be paid on capital expenditure, the charges would be much higher still One half of the beds, 300 out of 600, are of the more expensive kind, with baths attached, at 8 dollars or 32*s* a day, with a minimum professional charge of £4 and a maximum charge of £12 a week

We have no hospitals like that in this country. Yet what a boon they would be to the middle classes, as offering a much needed alternative to the nursing home, which is an indispensable institution in our present system, but one which will, in my belief, eventually disappear when the transitional period is over, and the paying hospital system is fully developed For even the best of nursing homes are subject to the grave disability that they are run for profit The City of Detroit, of course, has a general hospital as well, where free treatment is offered to the poor, but the distinguishing feature of the Ford Hospital is that it is a full size hospital, equipped on the very latest lines, advertising its attractions to the sick public just as a first-class hotel might do, the crucial difference being that it is expected to return no other dividend than the improving health of its guests The Bishop of Durham some time ago complained of the modern millionaire's lack of cultural imagination, even when obeying his benevolent impulses This Ford Hospital is an effective answer to that charge, and I hope it may find many imitators

THE MIXED HOSPITAL

If you do not altogether like the idea of a hospital run for paying patients only, though not run for profit, consider the scores of hospitals in the United States, in Canada, and others in this country too, where free and paying patients are found together under the same roof The Liverpool Royal Infirmary has had five paying single wards since 1887. It displays the right principle, but fancy five paying beds for the whole of Liverpool! At Brighton there are 14 private rooms, at Colchester 12, and so on The scale is utterly and grotesquely inadequate In America the hospital exists as much for the paying as for the free patient There you find part-paying patients and whole-paying patients, and those who pay for extra comforts and extra privacy according to a fixed tariff, nor is the fact concealed that such profit as is made on the paying patients is utilised for meeting the deficit on the free wards The richer patients help to carry the poorer, which surely is just as it should be They share all the incomparable advantages of a great hospital, which money cannot buy outside, and they are glad to help the poorer sufferers in the adjoining wards Such a system is conceived in the true spirit of human fellowship in suffering, and, believe me, differences of class count for very little amid the stark realities of the operating table or in the hospital ward

In my view we are ripe in this country for a rapid development of this system of mixed hospitals with paying and non-paying wards, or, if it is preferred, for a system of twin-hospitals—the one for free and the other for paying patients The choice may often be determined by the possibilities of structural alterations on the existing hospital sites Moreover, hospital experts now favour the view that a maximum of 600 beds is quite enough—or more than enough—for any general hospital, and that the model hospital of the future may be a large central building for urgent cases, with a ring of branch pavilions on the outskirts of the city, to which cases may be cleared as soon as they can be moved The motor car has made changes possible which 20 years ago would have been quite out of the question

THE VOLUNTARY SYSTEM JUDGED BY RESULTS

You will say, "What about finance?" I reply that such hospitals as I have described can be financed as our existing hospitals are financed—namely, by the voluntary subscriber But he must be organised as never before It must be brought home to every man and woman that if it is their misfortune to become hospital cases their place is in the hospital When once people realise that when they are gravely ill their chance of making rapid recovery is immeasurably greater in the hospital ward, they will not withold their support Given a liberal supply of paying wards, their subscriptions, when in health, will be sure, and in time of trouble they will gladly pay the tariff charged We have to make the hospital to that extent a business proposition, just as at present the nursing home is a business proposition But it will not be run for private profit, and that, I repeat, makes the all essential difference

May I remind you, in connexion with this problem of finance, that the provincial hospitals, as was shown by the last report of the Joint Council of the Order of St John and the British Red Cross Society, are now doing remarkably well Seventy-five per cent of 750 hospitals had a credit balance of their maintenance accounts for 1925, and their invested funds showed an increase of six millions in the last five years

It is not a failing or a decaying system which can produce results like those Remember, too, that 90 per cent of the current expenditure is subscribed voluntarily, and only 10 per cent is derived from public funds in return for services, which the State or the public authorities could not render half so cheaply, even if they could do it as well Let us get rid of the erroneous idea that the provincial hospitals live from hand to mouth under the threat of an ever-impending bankruptcy It is not true They were, indeed, in a parlous financial state after four years of war, during which they had most brilliantly justified their title to popular confidence and support But that nightmare has passed away, and whenever you have a capable board of management, you find the local general hospital facing the future with a cheerful serenity The problem of the great London

BLACKWATER FEVER IN LONDON

A CRITICAL STUDY.

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To the medical practitioner unfamiliar with the more dramatic diseases of the tropics it may be a matter of comment that such an essentially tropical condition as blackwater fever may occur not uncommonly in England in those who have recently resided in endemic areas of this disease It therefore occurred to us that an analysis of some fourteen cases of blackwater which have developed in London, and which have been studied during the last seven years, might reveal certain important aspects of the ætiology of this mysterious disease Though the admirable recent work of J. G. Thomson [1] has cleared up many hitherto unappreciated aspects of blackwater fever, it is generally admitted that there are many obscure points which still require elucidation

All the cases in this series have come from that notorious home of blackwater fever—the dark continent of Africa, especially the West Coast, where the subtertian form of malaria predominates (Macfie and Ingram) [2] All our cases occurred in Europeans of pure descent

The distribution of cases in our series is as follows. Nigeria (N & S), 6; Gold Coast, 3; Belgian Congo, 2 , Kenya Colony, 2; N Rhodesia 1 , total, 14 cases

The length of residence in the endemic area has been already dealt with by Stephens [3] and Thomson; the latter has pointed out that the chances of developing it are in direct relation to the length of time during which the individual has been exposed to the infection In our series the length of stay in the endemic area was stated in 11 cases, and varied from one to five years. the average time being 3 2 years

The next point investigated was the length of time which had elapsed from the time of the patients' arrival in England to the onset of blackwater fever In one case it developed on the day of arrival, but in no case did blackwater occur after *ten weeks'* residence the average time being four weeks The moral to be drawn from this would seem to be that patients suffering from subtertian malaria should be observed with great care during the first three months subsequent to their return to the English climate; only by this means can the danger of blackwater fever be averted To put it shortly, the reacclimatisation period is the period of danger We have been unable to elicit any factor of importance in the previous medical history of these cases, save that antecedent syphilis seems to play no part, as has been suggested in the rather analogous instance of paroxysmal hæmoglobinuria The Wassermann reaction was performed in five instances before the onset of blackwater with negative results A previous alcoholic history plays little or no part as a precipitating factor and in one case only of our series was there a definite history of alcoholic excess This case was fatal

With regard to the sex distribution 10 of the cases were males and four females Considering the relative proportions of the sexes in the tropics, especially in Africa this would indicate about an equal susceptibility of the sexes

No age appears to be exempt from blackwater, those of our cases ranging from 3½ to 62 years The subjoined table shows the incidence in different decades —

Age	Cases	Age	Cases
Under 20	1	40–50	2
20–30	7	50–60	0
30–40	3	60–70	1

The case of 3½ years, although not the youngest on record, is probably the youngest recorded in this country, and therefore is sufficiently juvenile to be of interest The mortality of blackwater in our series was exactly 50 per cent; this compares unfavourably with the average of 23 5 per cent worked out by Thomson in over 1000 cases in Rhodesia Half of our deaths occurred in adults in the prime of life and in the third decade

According to our figures, blackwater fever can occur in susceptible subjects in this country at almost any month of the year

The incidence was as follows January, 1 case; February, 1 , March, 2 , April, 1 : May, 1 : July, 1 ; August, 3 · September 1 ; November 3 No cases in June, October, or December There appears, therefore, to be no predilection for any particular time of the year.

In two instances there was a definite history of previous attacks of hæmoglobinuria In one there were two attacks within the last four years and to the third, during which he came under our notice, he succumbed A second case had suffered from an attack two years previously and he recovered. In another fatal case it is noteworthy that three brothers of the same family all fell victims to the same disease

The relationship of hæmoglobinuria to malaria was carefully investigated, and our findings are in entire agreement with those of Thomson We have divided our evidence into three headings —

(*a*) *Endemic area* —In every case the patient came from an area which has been abundantly proved to be an endemic focus of *subtertian malaria*.

(*b*) *Clinical history of subtertian malaria* was present in every case; that is to say low fever accompanied by bilious vomiting and general malaise, and that general subicteric tinge of the skin and sclerotics which stamps the malarial cachectic The dyspeptic symptoms may so dominate the clinical picture that, as in one of our cases, a tentative diagnosis of gastric ulcer had been made

(*c*) *Parasite findings* —Subtertian malaria parasite in the ring stage were demonstrated in 50 per cent. of the cases Crescents were found only once *Considering that many of these cases of blackwater* came under observation only after hæmoglobinuria had commenced, this is by no means a low proportion Thomson has pointed out the rapidity with which these malaria parasites disappear from the peripheral blood The following table correlates the parasite findings with the day of the disease :—

Before onset of blackwater				After onset of blackwater							
Day of disease	Cases exam	St P	Pa A	Day of disease	Cases exam	St P	Pa A	Day of disease	Cases exam	St P	Pa A
11	1	1	—	1	6	2	4	4	2	—	2
2	2	1	1	2	7	1	6	6	1	—	1
1	3	2	1	3	2	—	2	8	1	1	—

St P = Subtertian present Pa A. = Parasites absent

This table clearly shows that, although in the majority of cases the parasites are wholly destroyed with the onset of blackwater, and frequently with the result that the infection is extirpated this is not necessarily always so In one case in which no parasites could be demonstrated on admission to hospital, a scanty infection of subtertian rings was found on the eighth day, after the urine had become clear for about six days In other words a relapse of malaria had taken place during convalescence

Quinine in Blackwater Fever

In its more recent aspects the relationship of quinine to blackwater fever has been studied most accurately by Thomson This observer has stated that he has never seen a single case of blackwater health work to find the reason for this anomaly, which is, in fact, purely accidental

In 1834 the Poor-law Amendment Act was passed, and four years later came the Registration Act (Births, Marriages and Deaths) and the appointment of Poor-law officers At this time vaccination had survived the criticism of its earliest antagonists and scoffers Jenner had received the thanks of the nation in words and in cash, and had been honoured in many foreign countries, the evidence that small-pox could easily be prevented was obvious, and people who could afford to pay were asking for vaccination It is little wonder, therefore, that at this time the Poor-law Commissioners gave authority for Poor-law medical officers to vaccinate the poor at the public expense (1840), for not until 1848 was the first Public Health Act passed, and in 1840 the only local authorities which covered the whole country were those now known to us as boards of guardians Having taken up this wonderful discovery of Jenner's they administered it with such success that in 1854 so-called "compulsory vaccination" became law—not, however, being enforced till after the devastating pandemic of small-pox in 1871-72 Vaccination had been handled so well by the boards of guardians that it does not seem to have occurred to anyone that in the great Public Health Act of 1875 it should be transferred to the public health authorities With the introduction of the Infectious Diseases (Notification) Act of 1889, the change-over might conveniently have been made, but vaccination remains what it was at first, the only part of the boards of guardians' work which is concerned with the prevention of disease

The relationship between public vaccinators and their boards have, with few exceptions, been very cordial, and little criticism of the boards has been needed on this score The actions, however, of many boards for a number of years on the general question of vaccination may be severely criticised, for they are actions from which the country is now suffering severely by the recrudescence of preventable small-pox

CONTROL BY COUNTY COUNCILS AND BOROUGHS

It is suggested that county boroughs and county councils should take up the reins of vaccination, and this is, indeed, believed to be the essence of the change in the administration of vaccination contemplated in the new Bill

So far as the public vaccinator is concerned the machine runs so smoothly—and, according to reports from the Government Lymph Establishment, so successfully—that no single nut or bolt seems to need changing The working machinery of vaccination is all right, but the "order" department of vaccination is too often lacking in vim As regards the traveller for vaccination—the vaccination officer—it would often seem that the slacker he is the better pleased are the guardians Vaccination therefore flags Would it be different under health committees? I think it would, for such committees have the preservation of health, rather than the relief of poverty and sickness, as their main plank, and there would at least be one medical man associated with them to stand by vaccination and the public vaccinator

To get the right perspective it should be helpful to look at the matter from the point of view of the medical officer of health As to the views of the county M O H I cannot speak, but on the views of the urban and rural M O H I am, perhaps, in a privileged position, as I am public vaccinator to a county borough and a rural (county) area and M O H. to two urban and one rural district

As a district M O H I should be heartily glad, on small-pox breaking out, to be in a position to call up assistance for vaccination directly through the county M O H, thus avoiding the delay inevitably involved in getting into touch with the clerk to the guardians in order that he in turn may communicate with the public vaccinator If it is found essential to open vaccination stations the delay is added to by the fact that the clerk must (at the worst) wait for a meeting of his board, or (at the best) of a subcommittee of that board, in order to obtain sanction for opening these stations The Vaccination Order of 1917 empowers medical officers of health to vaccinate immediate small-pox contacts in case of emergency, but does not go so far as to empower them to vaccinate the numerous other people who request immediate vaccination or revaccination That is the work of the public vaccinator Delays would be enormously lessened if all that was necessary was a message to the county M O H, who would already have been given executive powers by his council for cases of emergency

OBJECTIONS TO THE TRANSFER

There are several questions, however, which it is necessary to study before willingly committing ourselves to transference to other control. First, will the power of the vaccination officer be in any way diminished or will he be given encouragement—instead of the too frequent discouragement—to utilise the powers already nominally vested in him? Secondly, will the placing of control in the hands of county boroughs and county councils mean that vaccination will eventually drift into the hands of assistant medical officers of health?

It is almost impossible for greater powers to be granted to the vaccination officer, seeing that at present he is expected to prosecute all who fail to arrange for the vaccination of children for whom they are responsible, and have not otherwise protected themselves in law This the vaccination officer can do without obtaining the sanction of his board in any particular case

But how often nowadays is a prosecution instituted? Seldom or never Largely by the opposition of ill-informed or only partly informed guardians the vaccination officer is discouraged from taking any action Could he more adequately fulfil his duties if he were under a county or borough council? I am of opinion that he could, for such councils—and perhaps more particularly county councils—would not be swayed by biased opinions in the same way that members of boards of guardians may be.

To turn to the second question, if it were likely that vaccination would drift entirely into the hands of assistant medical officers of health it would be a most serious thing, not only for the public vaccinator, but for the whole cause of vaccination In this eventuality the public vaccinator, as a separate entity—except in sparsely populated rural and in some cases urban areas—would be wiped out, and the cause of vaccination would suffer greatly from the fact that frequent changes of the assistant medical officers of health would prevent that good feeling between parents and the vaccinator which can only be developed by the passage of time, and by which the public vaccinator comes to be regarded in the same light, for this particular purpose, as is the regular medical attendant The fact that this homely atmosphere is absolutely essential to the smooth working of vaccination would surely be apparent, at any rate to the county borough M O H, who advises his committee As the change is not likely to be made in county areas, owing to the fact that assistant medical officers ordinarily live too far away from the homes of the people to be of any service, it does not seem likely that vaccination can ever drift into the hands of any other than practitioners residing in or near their appointed areas as at present

SUMMARY

I have endeavoured to put the case both for and against the proposal to remove vaccination from the control of boards of guardians and make it over into the hands of county boroughs and county councils It would apparently be to the advantage of the public vaccinator if such a transfer were made, and the change would probably be welcomed by all district medical officers of health, and, in my opinion—though this remains to be seen—by all county medical officers of health

Urine.

Observations on Urine before Onset of Blackwater.—Minute observations of the urine were made only in two cases before the onset of blackwater. In one the only abnormality detected was a trace of albumin two hours before the onset of blackwater. In the other cases, one day before the urine was quite normal, and the next morning—i.e., six hours before the onset of blackwater—urobilin and urobilinogen were present: albumin and a few granular casts were also noted.

Time of onset of blackwater was, as a rule, in the early morning, about 2 A.M.

Duration of Hæmoglobinuria.—This varies considerably. In cases which either recovered, or died after hæmoglobinuria had ceased, the shortest time was 24 hours and the longest four days. The average duration was 2 8 days In one case the urine cleared after two days, remained clear for two days, and was again pink for 24 hours.

Suppression of Urine in Blackwater Fever.—It is usually stated that the gravest danger to be apprehended in blackwater fever is suppression of urine In our series of cases suppression was not a marked feature. One case had absolute suppression for 30 hours, but recovered entirely from the urinary condition, only to die later of pneumonia. Another fulminating case passed only 2 oz. of urine in the 24 hours before death, but the fatal issue was due more to the profound anæmia than to the suppression. In at least six cases *polyuria* was noted, both during the hæmoglobinuria and in some cases afterwards Amounts up to 124 oz. in the 24 hours were noted In no case had we any reason to suspect that permanent kidney damage resulted. The results of spectroscopic examination of the urine are recorded in five cases. In two there was oxyhæmoglobin only: in one case methæmoglobin only and in two cases both pigments were present. In future, in order to see whether the nature of the pigments bears out the work of Baker and Dodds, more accurate observation on the reaction of urine in the different stages of blackwater will have to be made, and the results correlated with the pigment findings Bile, as has been frequently stated in text-books, was never found in the urine.

Examination of the Blood.

The observations on the blood are in agreement with those of other observers Before the blackwater attacks the blood picture is that of a severe case of subtertian malaria. The greatest destruction of red blood corpuscles with ultimate recovery of the patient was a young man, in whom the red cells dropped to under one million and the hæmoglobin was at one time 10 per cent A simple clinical observation regarding the presence of hæmoglobinæmia has been made in several cases At the commencement of hæmoglobinuria it will be found that the percentage of hæmoglobin is relatively high in comparison with the number of red cells. For instance, one case on the second day had 2,300 0000 red cells and 70 per cent. hæmoglobin—a colour-index of 1 5: five days later the red cells were 2 500 000 and the hæmoglobin percentage 40—a colour-index of 0 8 We suggest that the high percentage of hæmoglobin in the first instance is explained by the presence of free hæmoglobin in the serum. The number of subtertian parasites present in the peripheral blood varied greatly in different cases as has already been observed. In one only that was a fatal case were they extremely numerous A count revealed 1590 subtertian rings per c mm of blood some 12 hours before the advent of hæmoglobinuria.

Modes of Death.—We have already mentioned that none of our cases died of suppression. One died of septic parotitis following blackwater, one of acute cardiac failure, four of acute hæmolysis, and one of pneumonia Those who died of acute hæmolysis were cases of blackwater of a fulminating character and death supervened in two within 14 hours of onset

Treatment.

Treatment of Patient in Pre-blackwater Stage.—The essential difficulty which the physician experiences when confronted with a severe case of subtertian malaria is, on the one hand, the necessity of energetic treatment of the malarial infection, sometimes in order to save the patient's life: on the other hand, the ever-present danger of precipitating blackwater fever. In effect he is "between the devil of subtertian malaria and the deep, dark sea of blackwater fever."

We do not intend to discuss the minor points of treatment, but to lay down some broad principles.

(1) If, as has been shown, quinine in subtertian malaria induces hæmolysis it is reasonable to suppose that the smaller the quantity of quinine administered, the less will be the subsequent hæmolysis. Thus, there is every reason for commencing the specific treatment of subtertian malaria cases with small and repeated doses of quinine such as 1 gr. at four-hourly intervals, and gradually increasing as tolerance is established.

(2) Every precaution should be taken against chill.

(3) As both clinical and experimental work goes to prove that suppression of urine is much less likely to occur if the urine is alkaline massive doses of potassium citrate either alone or together with sodium bicarbonate should be given until the urine is alkaline. In most cases oral administration will suffice.

As a rule, in blackwater fever the urine is strongly acid, so that massive doses (it may be given in doses of 1 drachm at four-hourly intervals) are required to overcome the acidity. We do not suggest that this will necessarily stay off the onset of blackwater fever, but that it will guard against the possibility of suppression Incidentally, it is claimed by Sinton[5] that the efficacy of quinine is enhanced by the simultaneous exhibition of alkali.

Treatment of Patient during Hæmoglobinuria.—(1) If the urine is not made alkaline, as above intravenous injections of sodium bicarbonate (gr. 150 to 1 pint of distilled water) should be administered without delay. We have employed the same technique as Hanschell.[6] We consider that this is a more rational procedure than the massive injection of normal saline hitherto practised. It is not advisable ever to inject more than one pint of fluid at a time owing to the very real danger of œdema of the lungs.

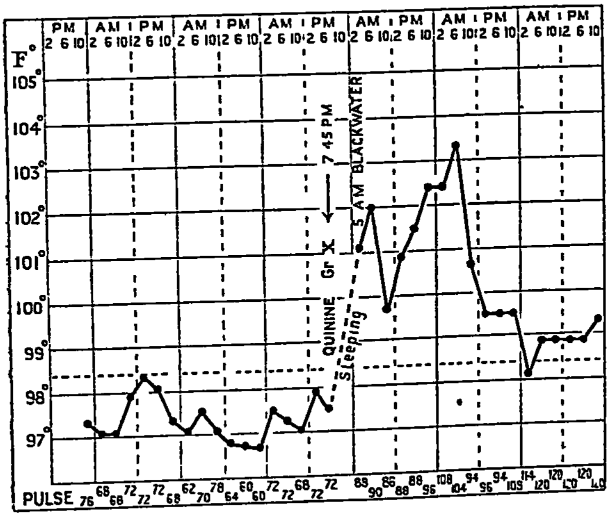
(2) Regarding the administration of quinine when once blackwater has commenced, we are of the opinion from a study of the cases in our series, as well as from a study of the literature, that there is no evidence that the continued administration of quinine has any appreciable effect on the course of the disease. It certainly does not prolong the hæmoglobinuria. On the other hand in most cases there is no indication for the exhibition of the drug as malarial parasites are usually absent after the onset.

(3) The obvious remedy that comes to one's mind in a case of severe hæmolysis is transfusion of blood from a suitable donor. There has been considerable hesitation in the past about adopting this procedure, because of the not unnatural fear of causing further hæmolysis with resulting suppression In a recent moribund case in whom the urine had cleared but who was suffering from extreme anæmia (the blood count showing only 850,000 red cells per c.mm.) blood transfusion of 700 c cm. of blood was performed, with the result that the patient revived in a miraculous manner and regained consciousness. There was no evidence of any further hæmolysis, and the urine remained clear. Unfortunately the improvement was not maintained and, in spite of a further transfusion, the patient died three days later.

Although a fatal issue ensued in this unfortunate case, we consider the results very encouraging, and have every intention of repeating it should a further occasion arise in a person who had taken 5 gr of prophylactic quinine daily We are unable to substantiate this statement in its entirety For we have accurate histories of two cases who faithfully took 5 gr of quinine daily during their stay in Africa and also during the voyage to England Another case (the brother of a doctor practising in Africa) had regularly taken prophylactic quinine, according to Koch's week-end system (i e, gr xv on Saturdays and Sundays with sodium sulph), and the child which we record, aged 3½ years, had been given 2 gr of quinine daily since leaving the endemic area and during her stay of two months in England

Effect of Quinine in Precipitating the Attack.—Anyone who has studied this subject admits the difficulty in determining the exact rôle played by quinine in precipitating the actual attack We consider it indisputable from general evidence that blackwater can occur when quinine has not been exhibited, but in our particular series it is difficult to escape the conclusion that this drug is a potent factor in precipitating the crisis In all cases, save one, quinine had been given in some form or other just prior to the attack, and not always in massive doses (from 5 to 28 gr daily) We will content ourselves with quoting one striking case —

A lady was invalided from Nigeria with symptoms of vomiting and dyspepsia, on which a diagnosis of gastric ulcer was based Accordingly she was admitted to a nursing home for X ray investigation of the intestinal tract On examination it was noted that the spleen was enlarged and she had an icteric tinge, and it was considered obvious that the gastro-intestinal symptoms were attributable to subtertian malaria No parasites were found in the blood After being in bed for four days with normal temperature the patient was given at 7 45 P M 10 gr of quinine, after which she spent a comfortable night until 2 A M when she woke up vomiting bile-stained fluid At 5 A M she had a rigor with a temperature of 101° F and passed blackwater, by 10 A M she was deeply jaundiced From a perusal of attached chart it is difficult to escape the inference that quinine precipitated this attack of blackwater



Other Precipitating Factors.

Naturally one considers the effect of chill—as in the analogous condition of paroxysmal hæmoglobinuria in which it is so well recognised In one case the onset was distinctly traceable to a thorough drenching while fishing One of our lady patients developed blackwater at the theatre at 11 P M, and we have another curious instance of a patient who, after 10 days' treatment in bed with full doses of quinine developed blackwater the morning following the first day out of doors In this case one is naturally suspicious of a chill having been the deciding factor

Clinical Aspects

In six cases of this series we have observed a condition which one may term the "pre-blackwater fever state" In three out of six seen before the onset the probability of blackwater supervening was definitely aroused in one's mind and the patient warned accordingly The following is a summary of the typical pre-blackwater symptoms low fever, nausea and vomiting, anæmia, persistent headache, constipation, general malaise, sometimes rigors The spleen is enlarged and painful, and sometimes the liver as well The urine before the attack shows a trace of albumin and urobilin It should be emphasised, however, that in some cases no pre-blackwater condition can be recognised The attack comes like a bolt from the blue as in the case of the lady already quoted in detail, a similar history was obtainable in other cases

Subjective Symptoms observed in Blackwater Fever—In 13 cases the onset was with a rigor In every case pyrexia was noted, varying greatly in height and persistency It was noted that the pyrexia frequently outlasted the hæmoglobinuria The pyrexia and rigors do not seem to be due to the effect of malaria parasites as few or none of these organisms can be demonstrated, and the temperature is entirely unaffected by quinine Undoubtedly these symptoms are attributable to the sudden liberation of the products of hæmolysis Bayliss has shown that hæmoglobin itself is not a toxic body, and the symptoms can be attributed to the stroma of the disintegrated blood corpuscles acting as a foreign protein The globin, when in a free state, is, moreover, also a toxic body and may play some part In other words, the symptoms are due to a form of protein shock

Pulse—We should like to make the observation which appears to us to be new that, on the whole, the pulse-rate is slow in proportion to the temperature.

Jaundice is more obvious in these cases which were destined to be fatal, but was noted in all

Bilious vomiting, always a marked feature of the disease, was noted in 11 cases

Abdominal pain, due to tenderness over the liver and spleen, was frequently noted as was also loin pain, especially in the early stages

Signs of Bad Prognosis—Hiccough which was noted in two fatal cases, jactitation noted in three fatal cases, and mental phenomena, such as delirium and extreme restlessness and insomnia, not affected by big doses of ordinary hypnotics, are all of serious import Delirium is common in severe cases We content ourselves with one remarkable example —

This patient remained more or less delirious until the sixth day when in the evening he suddenly became maniacal, got out of bed, seized two bottles of medicine, struck at the sister and, seizing hold of the nurse, tried to throw her downstairs He then locked the door and drank the contents of the two bottles After one hour he was induced to unlock the door and was found lying on the bed exhausted and the pulse uncountable Death appeared imminent He slept for one hour and was delirious all night. His hæmoglobin percentage at this stage was 10 During the next few days he gradually got stronger and the mental condition slowly improved There was a recurrence of vomiting, and jaundice deepened temporarily The jaundice persisted until one month from onset of blackwater and normal mentality was not reached till about the same time Eventually the patient left quite recovered

This case illustrates the fact that, although no case of blackwater fever, however slight, is too trivial to worry about, no case is too severe to despair of

Physical Signs

The Spleen—Attention was paid to the condition of the spleen in 12 cases In each it was enlarged and tender, usually reaching to the umbilicus In one case where no statement was made, both liver and spleen were found enlarged post mortem In five cases the observation was made that, after the onset, the spleen decreased markedly in size, and by the sixth day was only just palpable In one case it was not palpable at all on the fourth day The liver was enlarged and tender in six cases, usually two fingers-breadth below the costal margin

Gall-bladder—A distended gall-bladder could, in one case, be palpated with ease during the acute attacks tend to disappear at the onset of blackwater, while the benign tertian forms are still demonstrable in the blood The significance of this observation is obvious Two instances, quoted by Schilling and Jossman and Rudolf, in therapeutic malaria of hæmoglobinuria following *P vivax* infection, are possibly merely instances of paroxysmal hæmoglobinuria in syphilitic subjects

Now it will be remembered that the subtertian parasite undergoes an entirely different cycle of development in the human body from the benign tertian and quartan In the former schizogony proceeds, not in the corpuscles of the peripheral blood but in the capillaries of the internal organs, notably the spleen We submit that, in persons who are going to develop blackwater fever a great proliferation of the subtertian parasites is proceeding within the spleen pulp, and the spleen itself is engorged and tender The number of parasites found in the peripheral blood cannot therefore be taken as a real index of the number of parasites in the spleen and liver, in other words, these organs form the home of the subtertian parasite

Hæmolysis normally occurs within the spleen pulp and the capillaries of the internal organs, and coincides with the full development of schizogony of the subtertian parasite This schizogony usually occurs very irregularly Although there is no proof of its occurrence, it is possible that in blackwater fever full development of schizogony of a very large number of parasites might be attained at the same moment. The hæmolysis in the spleen would then be extreme, and the amount of free malarial hæmolytic toxin liberated proportionately great The absorption of this sudden massive dose of malarial toxin into the general circulation then leads to general hæmolysis, the resources of the reticuloendothelial system are overtaxed, and hæmoglobinuria results

The rôle of quinine in the production of blackwater is obscure, but we suggest two possible ways in which it may act —

(1) Neave Kingsbury has shown that the administration of quinine in subtertian malaria is followed always by an increase in the serum bilirubin, which begins one hour after administration and continues for 24 hours This means to say that quinine causes definite hæmolysis of the infected red cells, and, as suggested by the same worker this increased hæmolysis might be just sufficient to precipitate the onset of blackwater—i e, the last straw which breaks the camel's back

(2) Although the reduction in the size of the spleen in malaria after quinine therapy is to be ascribed to direct destruction of the parasite, there is considerable evidence that quinine can cause contraction of the spleen by a specific action on the non-striped muscle of that organ (Cushny[16]) Its action on the uterus is well recognised A sudden contraction of a heavily infected spleen, even if only of very short duration, would force a very large amount of hæmolytic toxin into the general circulation, and might thus cause a profound hæmolysis

Further work on the functions of the spleen and the effect on them of drugs, cold exercise, &c, may throw some light on the production of blackwater fever

Our best thanks are due to Dr A L Gregg, late medical superintendent, Hospital for Tropical Diseases to Dr W E Cooke, the present medical superintendent and to Dr Stuart Anderson for their care of the cases quoted in this paper, and for their assistance in making these observations

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DIVERTICULITIS *

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FIRST SURGICAL ASSISTANT AND DEMONSTRATOR OF ANATOMY, LONDON HOSPITAL

DIVERTICULA of the large intestine may be congenital (or true) and acquired (or false)

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Acquired Diverticula Pathology

Acquired diverticula of the large intestine may be found in any part of it The commonest site is the pelvic colon, whilst above the splenic flexure and in the rectum they are relatively much less frequent Diverticula of the large intestine were present in 218 out of 10,167 consecutive post-mortem examinations —i e, 2 14 per cent —but of these 10,167 post-mortem cases, 55 per cent were less than 30 years of age, 24 per cent were between 30 and 50, and 21 per cent were over 50 In the great majority of the 218 cases the pelvic colon was the part affected, but diverticula were found in every part of the large gut, including the rectum It was interesting to note how frequently diverticula of the pelvic colon ceased suddenly at the rectosigmoidal junction They were usually multiple, sometimes numbering hundreds, but occasionally only one was present They varied in size from that of a grape to a grape seed

They were essentially hernial protrusions of the mucosa and submucosa through the circular muscle at those sites of perforation of the latter by vessels where subserous fat was present (This was first observed by Klebs) These perforating vessels occur at certain definite places (*a*) the mesocolic attachment, and (*b*) between the mesocolic tænia coli and the lateral tænia According to Hamilton Drummond, however, diverticula are prevented from passing directly into the mesocolon by the presence of the strong mesocolic tænia, so that those, following perforating vessels, appear primarily between the mesocolon and the lateral tænia Then they commonly enter the appendices epiploicæ (which lie immediately behind the lateral tænia and contain fat continuous with the retroperitoneal fat) because the fat in them offers less resistance to enlargement than does the serosa (Bland-Sutton), or pass backwards along the vessels between the serosa and the circular muscle. sometimes to lie in the mesosigmoid (Hamilton Drummond) Occasionally diverticula appear at the antimesocolic border, and then they are not usually associated with any vessels

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Theory of the Genesis of Blackwater Fever based upon a Study of these Cases Correlated with Recent Biochemical Knowledge

In subtertian malaria hæmolysis occurs with each attack of fever, and in cases of "low fever," when, as so often happens, patients deny they are really ill, a chronic hæmolysis must in effect be taking place

The evidence for this is based on a consideration of the following facts —

(1) A progressive anæmia, as shown by blood counts and hæmoglobin estimations, which in subtertian infections may proceed to an extreme degree and resemble Addisonian anæmia, it is just in these cases, as one of us (P H M.-B)[7] has pointed out, that the parasites of subtertian malaria can be demonstrated only with great difficulty

(2) Indirect positive van den Bergh reactions Neave Kingsbury[8] has recently shown that in 99 per cent of cases of subtertian malaria the serum bilirubin is above the normal figure, which is taken as 0 5 units

(3) Urobilin is found in the urine in pathological amounts in 92 per cent of cases of subtertian malaria

(4) Excess of bile is excreted leading to bilious vomiting, which characrerises "bilious remittent fever" Normally the reticulo-endothelial system of the body is able to deal with the products of hæmolysis in the following manner —

The hæmoglobin is split up into (1) hæmatin (the iron-containing part), (2) globin (the iron-free protein part)

Hæmatin is not commonly found in the blood or tissues, but some observers state that they have found it in the blood in malaria, and Brown,[9] finding that solutions of hæmatin cause chills and fevers, suggests this pigment may at least be partially responsible for the symptoms of malaria

It is generally maintained that hæmatin is gradually split up by the reticulo-endothelial system into (1) an iron-free pigment hæmatoidin, or bilirubin, (2) iron-containing pigment, hæmosiderin

The bilirubin is excreted by the liver, resulting in an increased flow of bile The liver is so busy dealing with bilirubin that it is unable to deal with the urobilin, which is absorbed from the intestine, and therefore appears in the urine At the same time the amount of bilirubin in the blood is increased As long as the liver is functioning well, no bile will appear in the urine, because the renal threshold for bilirubin stands normally at four units, in fact, the threshold in hæmolytic jaundice is even higher, it being possible to have between 5 and 18 units present in the serum, without the appearance of bile in the urine This is the probable explanation of the discoloured skin and lemon-tinted sclerotics which characterise subtertian malaria

The hæmosiderin is deposited as brown or yellowish-brown granules in the liver, spleen, bone-marrow, and kidney From these sites it is later taken up to be utilised in the formation of new red blood corpuscles

The very plausible suggestion, put forward by Kingsbury, is that the enlargement of the spleen in malaria is due to the hypertrophy of the reticulo-endothelial system, in order to cope with the big demands on the system in dealing with the products of hæmolysis The extent of hæmolysis, as measured by the serum bilirubin and urinary urobilin, goes hand in hand with the size of the spleen At the onset of blackwater fever, a condition in which the hæmolysis is profound, the spleen is usually very large indeed and tender, as we have pointed out

In the majority of cases of subtertian malaria probably little or no free hæmoglobin appears in the serum But in a more severe infection, where a greater degree of hæmolysis occurs, the reticulo-endothelial system cannot deal immediately with all the products of hæmolysis, and a certain degree of hæmoglobinæmia must result.

Now, although there is hæmoglobinæmia, there is not *hæmoglobinuria*, because the kidney has a definite threshold for hæmoglobin, just as it has for sugar urea, &c, and until it reaches a certain concentration in the serum it will not be excreted by the kidney as hæmoglobin According to Pearce,[10] before the kidney will excrete hæmoglobin the blood must contain at one time more than 0 06 g of free hæmoglobin per kilo of body-weight It is also stated by Sellards and Minot[11] that at least 17 c cm. of *laked corpuscles* are necessary in order to produce hæmoglobinuria in man So it is possible to have a condition of hæmoglobinæmia without hæmoglobinuria, and doubtless this often occurs

If the hæmolysis is still more profound, then, in spite of the fact that the reticulo-endothelial system is working at its fullest capacity, some of the hæmoglobin is, as it were, "spilled over" the kidney threshold, and hæmoglobinuria, or blackwater fever results It is more a question of the rapidity of hæmolysis than of degree—i e, the red count may fall from five million to one million without hæmoglobinuria, provided that it does so at such a rate that the reticulo-endothelial system is able to deal with it A *sudden* hæmolysis of a much smaller degree, on the other hand, may temporarily overtax the powers of the reticulo-endothelial system and result in hæmoglobinuria

It is important to realise that, even when the hæmoglobinuria occurs, most of the hæmoglobin is broken up by the usual mechanism and only a relatively small proportion, 17 to 36 per cent, is excreted in the urine It therefore follows that, as is observed clinically, there is deep hæmolytic jaundice, increased excretion of bile, and the appearance of urobilin in the urine, and very obvious enlargement of the spleen

The hæmoglobin is in solution in the serum and can be demonstrated there (Thomson), but, as also was proved in one of our cases, for a short period only

According to Baker and Dodds,[12] what happens now depends on two factors (1) the reaction of the urine, (2) the concentration of sodium chloride If the reaction of the urine is above pH 6 the hæmoglobin will be excreted in the form of oxyhæmoglobin, the urine will be red and clear, and no suppression will result

If the reaction be below pH 6 and there be 1 per cent or more of sodium chloride present, brown pigment will be precipitated in the tubules The hæmoglobin passes through Bowman's membrane in dilute transudate, the reaction of which is in region of that of the blood When the tubules are reached, reabsorption and concentration take place, together with an increase in the acidity of the urine. The hæmoglobin is then precipitated—probably as hæmatin—with the result that the tubules are liable to become occluded, and renal function is impaired The urine is brown, and shows the spectrum of methæmoglobin, and there is a dense deposit The deposit seems to contain hæmatin

This explains how suppression is brought about It should be borne in mind, however, that the kidney has considerable powers of getting rid of the plugs in the tubules, as witnessed by the masses of casts found in all blackwater urines

It is noted that during blackwater fever the spleen, which at the onset is big, rapidly decreases in size, so that by the sixth to eighth day it is frequently only just palpable The explanation of this would seem to lie in the fact, demonstrated by Barcroft[13] in animals, that any condition in which oxyhæmoglobin is removed from the circulation, the spleen contracts down even to one-sixth of its original size

The crux of the question in blackwater fever is, as Sir Patrick Manson used to say "What pulls the trigger"? We consider that it is now firmly established that blackwater fever in man is found only in association with the subtertian parasite, and that reports of its association with the benign tertian parasite under natural conditions rest on slender foundation, and are probably explained by the occurrence of a double infection In these double infections, as has been pointed out by Thomson, the subtertian parasites tend to disappear at the onset of blackwater, while the benign tertian forms are still demonstrable in the blood The significance of this observation is obvious Two instances, quoted by Schilling and Jossman and Rudolf, in therapeutic malaria of hæmoglobinuria following *P vivax* infection, are possibly merely instances of paroxysmal hæmoglobinuria in syphilitic subjects

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The wall of the diverticulum was composed of mucosa, submucosa, and serosa, and in the cases in which it had entered an epiploic appendix there was a quantity of fat beneath the serosa, and it was very easy to overlook the presence of the diverticulum In the present series a prolongation of muscle was sometimes seen in the wall of the diverticulum, but never at the apex Fæcal material was generally present in the diverticula, in one of which was a foreign body. As a result of the inadequate muscle coat, combined with the fact that the opening into the bowel is usually minute and always much smaller than the lumen of the diverticulum, fæcal material is unable to re-enter the bowel Absorption of fluid takes place, resulting in inspissation and the formation of a fæcal concretion or stercolith, containing cholesterol and calcium carbonate Pressure on the musosa, combined with the inevitably present micro-organisms, results in inflammation—i e, diverticulitis Rarely this ends in resolution, but very much more commonly in fibrosis, suppuration, or gangrene Apart from being an end-result of inflammation, gangrene may also result from vascular thrombosis Perforation of the diverticulum not infrequently occurred, leading to abscess formation or general peritonitis It is interesting to note in this connexion that a careful post-mortem examination of cases of diverticulitis with general peritonitis usually revealed the same sequence of events—first the formation of a pericolic abscess, and second the rupture of this abscess into the general peritoneal cavity

In the absence of perforation bacteria may penetrate the diverticular walls and give rise to abscess formation or general peritonitis, but much more frequently to chronic localised peritonitis and peridiverticulitis As a result of chronic localised peritonitis the pelvic colon tends to become adherent to surrounding structures, especially the bladder, small intestine, uterus, and its appendages, and the parietes, in that order of frequency If perforation occur now a fistula will be formed between the pelvic colon and the adherent viscus This bi-mucous fistula was vesicocolic in four cases and rectocolic in one No case of vesicocolic fistula has yet been reported in a female, apparently on account of the intervention of the uterus and its appendages In two cases adhesions to the small intestine produced intestinal obstruction, and this may also be caused by kinking in consequence of chronic mesosigmoiditis. It may be well to recall here that if the pedicles of an abnormally mobile omega loop are approximated by chronic inflammation of the mesosigmoid volvulus is likely to occur Intestinal obstruction may result from chronic localised peritonitis in yet another way—an inflamed diverticulum in an appendix epiploica becomes adherent, forming a band which strangulates a loop of small intestine.

Abscess formation is more frequent than general peritonitis, the reason being that by the time perforation or penetration occurs protective adhesions have usually formed, thereby limiting the suppurative process In 52 cases of diverticulitis there were 11 abscesses clinically diagnosable as such, but the majority of the cases of general peritonitis were found to have resulted from rupture of pericolic abscesses, bringing the total number of abscesses up to 17 The abscesses are often small and may remain more or less latent, but not infrequently they burst into the bladder, giving rise to a vesicocolic fistula, or into the rectum or colon discharging themselves, or into the small intestine or through the skin They may track upwards between the mesentery and the descending colon or along the outer side of the latter and form left anterior subphrenic abscesses, or they may form in the retroperitoneal tissue, surround the left kidney and point in the loin Occasionally they enter the psoas sheath, within which presumably they might spread upwards, producing subphrenic abscess and empyema, or downwards pointing in the thigh Sometimes a diverticulum in an appendix epiploica is found in a hernial sac (usually left-sided femoral) and may give rise to an abscess therein Pelvirectal abscess may have its origin in pericolic or perirectal suppuration, the result of diverticulitis

Peridiverticulitis is a condition characterised by enormous thickening of the bowel wall, so that it may measure as much as 1 inch from mucosa to serosa. As contraction of the fibrous tissue occurs stenosis of the lumen results, producing intestinal obstruction in varying degree In a typical case the macroscopic appearance was as follows The peritoneal coat was thickened and adherent to surrounding structures. There was an increase in the amount of subserous fatty tissue, especially in the appendices epiploicæ The bowel wall was greatly thickened and intersected by small abscesses and sinuses and contained diverticula in various stages of inflammation, often containing fæcal concretions Generally the mucosal surface was smooth, ulceration being absent, but when a stricture was present the mucous membrane above it was sometimes ulcerated A stricture resulting from peridiverticulitis was usually tubular The adjacent lymphatic glands were frequently enlarged Microscopically the mass was found to consist of dense fibrous tissue with areas of small round-celled infiltration, whilst in other places evidence of more acute inflammation was to be found, abscesses and diverticula in varying degrees of inflammation were seen

As one would expect in the case of long-standing chronic inflammation, carcinoma may supervene. How frequently this happens is very difficult to say, but in the Mayo Clinic 7 cases out of 27 are reported and Gant records two cases, whilst Hochenegg, Telling, Roberts, and others have also reported cases In none of the present series was there evidence of the supervention of carcinoma For the recognition of diverticula in a carcinoma Wilson advises the use of a fine glass probe, with which the fresh mucosal surface of the carcinoma is carefully examined Any area in which the probe enters the bowel wall is treated by horizontal sectioning, diverticula present being thus demonstrated Portal pyæmia with abscesses of liver may complicate diverticulitis, such a case was recorded by Whyte, whilst Foggie reported a case of systemic pyæmia, in which embolic abscesses of the lungs and brain resulted from a similar cause In the present series fat necrosis was observed in the pelvic mesocolon in one case of death from general peritonitis following perforation of a diverticulum. A similar condition occurred in Roberts's case

Ætiology

Age-incidence of Diverticula in the 218 Post-mortem Cases.

Years	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	Totals
Males	1	0	2	16	33	50	23	10	135
Females	0	0	5	9	23	26	18	2	83
Totals	1	0	7	25	56	76	41	12	218

The youngest patient was aged 12, the oldest aged 86 (Ashurst reported the case of a patient aged 7, the condition being verified by operation, whilst Hartwell and Cecil's case was a patient aged 6)

In the 218 cases inflammation was present in only 5.

Age-incidence of the 52 Clinical Cases of Diverticulitis

Years	20–29	30–39	40–49	50–59	60–69	70–79
No of cases	3	5	15	10	15	4

Males were more frequently affected than females—35 out of 52 cases The youngest patient was aged 23, the oldest aged 77 About half the cases were definitely obese, a small percentage thin and wasted, whilst about a quarter of the patients alleged a recent loss of weight A history of chronic constipation was obtainable from the majority, but by no means all How important a factor constipation is in the production of diverticula is difficult to say, for against it must be considered the important and well-established fact that diverticula are more common in men and constipation is more prevalent among women

The actual cause of diverticula formation is unknown, but the following theories may be mentioned —

(*a*) Graser's . periodic mesenteric congestion.

(*b*) Sudsuki's loss of perivascular fat.

(*c*) Keith's sacculation of the large gut combined with irregular tonic contraction of the circular muscle resulted in the forcing out of diverticula at weak points

(*d*) Congenital weakness of unstriated muscular tissue throughout the body resulting under certain circumstances in the formation of diverticula In support of this it is interesting to note that in the 218 cases of diverticula found post mortem 24, or 11 per cent , were accompanied by diverticula in other hollow viscera In 9 cases there was a similar condition of the small intestine, in 9 of the bladder, in 5 of the œsophagus, and in 1 of the œsophagus and bladder Hamilton Drummond in 500 post-mortem examinations found 22 cases of diverticula In 4 of these there was a similar condition of the small intestine, and in 1 of the bladder—i e , 23 per cent —were accompanied by diverticula in other organs

(*e*) Still others regard the condition as a simple atrophic manifestation Constipation is the first event, the bowel hypertrophying in an attempt at compensation When hypertrophy has reached its limit it is succeeded by atrophy and diverticulation.

If diverticula were the result of increased intracolonic pressure only, then one might have expected to find them with some frequency above strictures This was exceptional. On the other hand, it must be remembered that most colonic strictures (excluding diverticular) are carcinomatous and therefore the condition may not be long enough in existence to allow the formation of diverticula

Whichever explanation is the correct one, the two essential factors are the same presumably as in all other herniæ (*a*) weakness, congenital or acquired, of the bowel wall , (*b*) increased intracolonic pressure, whether it be due to obstruction to the onward passage of fæces or to constipation, excessive gas formation, &c

Signs and Symptoms.

The clinical features of *acute diverticulitis* have been well described as those of acute appendicitis in the left iliac fossa. They included the usual general constitutional disturbance with elevation of temperature, pulse-rate, &c , and pain, tenderness and rigidity in the left iliac fossa with or without the presence of a lump. Sometimes these signs and symptoms were in the hypogastrium or right iliac fossa There were seven cases of acute diverticulitis (13–14 per cent), in the majority of which a diverticulum had perforated

Abscess —There were 11 cases of abscess (21 per cent), 4 were in the left iliac fossa, 1 in the left loin, 3 in Douglas's pouch, 1 in the right iliac fossa, and 2 in the right lumbar region

General peritonitis occurred in 12 cases (24 per cent), in 3 of which it complicated acute intestinal obstruction

Intestinal obstruction was generally chronic with occasional subacute attacks Now and then the condition became acute (three cases, 6–7 per cent) There were 16 cases (30 per cent.) of chronic obstruction, seven of which were associated with a palpable tumour A certain number gave a history of recurrent attacks of acute diverticulitis

Vesicocolic fistula was present in four cases (8 per cent) The patients complained of the passage of flatus and sometimes fæcal material per urethram and usually of painful and frequent micturition Excluding these four cases urinary symptoms occurred in 7 patients, in one of whom the main trouble was dysuria Another suffered from hæmaturia, his urine containing pus and *Bacilli coli* Another developed a vesicocolic fistula later One case somewhat simulated a gynæcological condition and one was discovered accidentally.

Tumour was present in 23 cases, 14 in the left iliac fossa, 4 in the hypogastrium, 2 were felt per rectum only, 1 in the right iliac fossa, and 2 in the right lumbar region In the majority of these cases the swelling was due to peri-diverticulitis, but almost as many were abscesses The typical tumour, so frequently present in the left iliac fossa, was somewhat sausage-shaped, tender, irregular, hard, deeply situated, and fixed It had a distinct tendency to vary in size This was very characteristic Apparently it was due in some cases to absorption of pus or escape of the latter through a fistula and in others to subsidence of inflammation in one part of the tumour, being followed later by an inflammatory exacerbation in another Again it was not infrequently observed that the tumour diminished markedly in size after the emptying of the bowel by an enema , in such cases fæcal impaction was doubtless the main factor in the variation

Toxæmia produced a moderate elevation of temperature and pulse-rate, and occasionally in more severe cases marked loss of weight and strength resulted Somewhat characteristic was an intermittent pyrexia, the temperature not usually rising above 101° F

Leucocytosis was frequent.

Bowels —Constipation was present in the majority, occasionally alternated with diarrhœa In eight cases blood was passed per anum The bleeding in four of these was hæmorrhoidal in origin, in one very probably diverticular, whilst in the remaining three its exact source was not determined Three patients were troubled with tenesmus Pus was passed per anum by one patient whose pelvic abscess burst into the rectum

Although clinical groupings are useful, it must be understood that they frequently overlap—e g., general peritonitis may occur in a patient who gives a history of previous attacks of acute diverticulitis and chronic obstruction, whilst chronic obstruction is frequently associated with recurrent attacks of acute diverticulitis, &c

Diagnosis

Diverticulitis must be considered a definite possibility in all patients over the age of 30 who have inflammatory trouble in the left iliac fossa, signs and symptoms suggesting carcinoma of the colon, vesicocolic fistula, or general peritonitis of unknown origin It has to be diagnosed from .—

Carcinoma —Diverticulitis may simulate carcinoma very closely and sometimes a differential diagnosis is impossible, but the following points will prove helpful in deciding between the two conditions 1 Long history of chronic constipation with attacks of abdominal pain in the left iliac fossa 2. Periodic febrile attacks 3 Persistent absence of blood from the stools (macroscopic) 4. Patients usually fat and general condition good 5 Varying size of tumour, but generally large and fixed 6 Leucocytosis

These six points are in favour of diverticulitis In addition the presence of a vesicocolic fistula, which results much more frequently from diverticulitis than from carcinoma, would suggest the former The suggestion could be confirmed by *cystoscopy*. In a case of diverticulitis there will be an area of inflammation generally most marked on the posterior wall of the bladder high up with pus coming through from time to time If the case be one of carcinoma growth will be visible.

Sigmoidoscopy is not usually helpful on account of the difficulty of passing the instrument sufficiently high up If the lower end of a smooth stricture be seen and a tumour be felt immediately above, the evidence is in favour of the inflammatory condition Another point also in favour is said to be the absence of blood from the higher part of the bowel inspected. It is usually quite impossible to see the openings of the diverticula

X ray examination is often conclusive The diverticula are best seen after the barium enema has been evacuated, the bowel then being empty, but the diverticula retaining their barium for days Sometimes a long irregular tunnel stricture is seen and is characteristic.

Hyperplastic Tuberculosis —This usually presents no great difficulty in diagnosis and is more likely to be confused with cancer of the cæcum than with anything else, whilst it so rarely affects the pelvic colon that it need hardly be considered seriously in the differential diagnosis

Actinomycosis usually affects the right iliac fossa, but sometimes the pelvic colon is the part involved There is a great tendency for it to spread to the surrounding structures, retroperitoneal tissues, and the abdominal wall. Sinuses form, the typical sulphur granules containing the ray fungus are present in the pus, and the patient wastes and goes rapidly downhill

Acute Appendicitis —The diagnosis of acute appendicitis was made four times. In three of the four cases the condition found at operation was diverticulitis of the cæcum and lower part of the ascending colon whilst in another case the pelvic colon lay in the right iliac fossa, and the perforated diverticulum was ligated and removed through the gridiron incision which had been made. In two cases the pain started in the umbilical region, and then localised in the right iliac fossa, and in one case was accompanied by hyperæsthesia. There was no previous history at all suggestive of diverticulitis, and correct diagnosis was apparently impossible.

Gynæcological Syndrome.—It is recognised that diverticulitis may mimic very closely certain gynæcological conditions—e.g., chronic salpingo-oophoritis, carcinoma of the ovary, &c. Shoemaker has emphasised this very strongly, and a routine examination of the rectum and pelvic colon has been suggested by some in all cases of pelvic disease. In one case only of the present series was there any simulation of gynæcological disease. This patient had in Douglas's pouch a hard lump which was not attached to the uterus and was not accompanied by bowel symptoms, other than lifelong constipation. She was first examined in the gynæcological department, where it was suggested that she was suffering from carcinoma of the pelvic colon, but further investigation pointed to diverticulitis, which was the condition found at operation.

Pericolitis and Sigmoiditis.—Some years ago when diverticulitis was relatively unknown, these terms were popular diagnoses. But gradually diverticulitis has replaced them, just as appendicitis has replaced perityphlitis. It is probably correct to conclude that sigmoiditis or pericolitis can occur apart from diverticulitis, that these are very rare, and from the point of view of diagnosis in practical surgery need not be considered.

Fibromatosis of the colon has been described, and one very characteristic feature is enormous thickening of the submucosa. It apparently results from infection through an ulcer and is but a modification of the very rare non-diverticular sigmoiditis.

Syphilis very rarely involves the pelvic colon, but when it does the shorter history and possibly signs of previous syphilitic trouble and the Wassermann reaction amongst other things should make the diagnosis clear.

General peritonitis from other causes. If the patient be suffering from general peritonitis when first seen, other causes of that condition, such as appendicitis, perforated duodenal or gastric ulcer should be excluded if possible. A consideration of the history and physical signs including mode of onset, type of patient, presence of a lump, and site of maximum tenderness and rigidity will often enable this to be done.

Perinephric and subphrenic suppuration occasionally result from diverticulitis, and have to be distinguished from that due to other causes by the history and physical signs.

Treatment

This will be considered under several headings.

Acute Diverticulitis.—When the diagnosis of diverticulitis is certain or probable the abdomen is opened by a left lower paramedian incision. If an inflamed diverticulum be found it should be removed; if perforated drainage is indicated. In some cases it is only possible to close a perforation by over-sewing or covering with omentum, whilst in yet other cases, including those in which general peritonitis has resulted from rupture of a pericolic abscess, suprapubic drainage is all that is possible. It is to be remembered that these patients are often poor subjects for operation and desperately ill, and therefore the minimum that is necessary to give the patient a chance should be done as quickly as possible. *Abscess.*—This should be opened and drained in the usual way.

Vesicocolic Fistula.—Laparotomy is performed and careful examination made to determine, if possible, the cause of the fistula. Any manipulation must be undertaken with extreme care to prevent the opening up of a pericolic abscess, rupture of a diverticulum, or injury to the gut. Preliminary cystoscopy and the history and physical signs will have proved helpful in excluding carcinoma. Transverse colostomy is performed. As a rule the gut need not be opened until the third or fourth day. The vesical fistula usually closes in a few weeks, and excision of the affected portion of the bowel with any necessary repair of the bladder may be undertaken in about one year's time. This two-stage operation greatly diminishes the risk of general peritonitis.

Intestinal Obstruction.—The treatment for this condition is colostomy. In certain acute cases with marked dilatation of the cæcum and small intestine a temporary valvular cæcostomy may be necessary in addition. At operation it is also very essential to decided if possible whether the condition be diverticular or carcinomatous. The character of the tumour must be considered, then the condition of the glands, peritoneum, and liver. It is sometimes absolutely impossible to decide between carcinoma and diverticulitis macroscopically, and this is undoubtedly the explanation of the disappearance of certain alleged carcinomatous tumours after colostomy. In view of this, if the tumour be not definitely carcinomatous a piece may sometimes be removed carefully for microscopic examination and the wound closed by suturing, over-sewing, or an omental graft. Excision of the affected portion of gut is always inadvisable in the presence of obstruction.

Radical treatment, if not contra-indicated by the age and condition of the patient nor by too extensive involvement of the bowel, &c., may be carried out one year later, and will consist in excision of the affected portion of the gut with end-to-end union or permanent colostomy according to the amount removed. These remarks apply to obstruction of the large bowel at the affected site. Small gut obstruction is treated along the usual lines, whether due to strangulation by an adherent epiploic appendix acting as a band, or due to kinking of a loop of intestine which has become adherent to the inflamed mass. If in the latter case the adhesions be very dense, a lateral anastomosis between the afferent and efferent loops may be indicated.

Diverticula Discovered Accidentally during Screening, and causing no Physical Signs nor Symptoms.—Provided that these patients can be supervised periodically to enable the progress of the case to be watched, they may be treated medically, the essentials being thorough daily evacuation of the bowels procured if necessary by the use of mild aperients and laxatives (liquid paraffin excellent).

Prognosis

This will depend on the condition of the patient when first seen.

General Peritonitis.—This is a very grave complication. Two out of nine patients recovered; one of the remaining seven would have done likewise, but died from pulmonary embolism on the twelfth day.

Abscess.—This is a much less serious condition. 9 out of 11 recovered and 2 died from general peritonitis (not included in the above).

Acute Diverticulitis.—The prognosis in these cases, if treated by operation, is good. Seven cases were submitted to operation and all recovered.

Intestinal Obstruction.—In *acute* obstruction the outlook is bad. These patients have sometimes suffered previously from attacks of subacute obstruction and recovered with medical treatment, so that there is a tendency for the serious nature of their present condition to be overlooked too long before receiving surgical treatment. Another danger to which they are exposed is the forcible injection of enemata, which at times has caused the rupture of a diverticulum and general peritonitis. Of the three cases of acute obstruction in the present series all had general peritonitis. One died just after admission to hospital before an operation could be performed, and the other two, who were about moribund before, died shortly after operation. In one case there was a strong smell of turpentine in the peritoneal fluid, and a ruptured diverticulum had apparently resulted from the forcible injection of a turpentine enema.

Chronic.—If colostomy be performed well above the tumour and excision, when not contra-indicated, be carried out about one year later, the prognosis is good other things being equal Of five cases treated by partial colectomy four recovered and one died This case, however included a plastic operation on the bladder and is that reported below under vesicocolic fistula

Vesicocolic Fistula—Colostomy, well above the fistula, renders the immediate prognosis very good and greatly improves the patient's chance in a radical operation later Three of the four cases have been treated by preliminary colostomy, the vesical fistula has closed and further treatment will be carried out one year after the first operation The fourth died from general peritonitis two to three weeks after a radical operation had been performed without a preliminary colostomy Spontaneous cure has been reported, but must be very rare In cases that are accidentally discovered and are not giving rise to much trouble careful medical treatment will suffice

I am indebted to the Director of the Pathological Institute at the London Hospital for much helpful advice, and to those surgeons of the London Hospital under whose care were many of the patients

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THE DICK TEST

AND ACTIVE IMMUNISATION AGAINST SCARLET FEVER

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IN an endeavour to estimate the reliability of the Dick test, and the value of active immunisation of susceptible individuals against scarlet fever, the nursing staff of an infectious diseases hospital, to the wards of which are admitted annually from 1500 to 2000 odd cases of the disease, affords a particularly favourable field Here we have a group of young adults, of necessity in intimate daily contact with cases of scarlet fever in the most highly infective stage of the disease The degree of infectivity is reflected to some extent in the fact that during the past six years 70 nurses in this hospital have contracted scarlet fever whilst on duty

Preparation of Toxin

The toxic filtrate used in the early part of the work, both for testing and immunisation, was obtained from a culture of the specific hæmolytic streptococcus isolated from the throat of a scarlet fever patient in this hospital For testing purposes the filtrate was diluted to 1 in 1000 with normal saline We have to thank Prof T J Mackie, of the Bacteriology Department of the University of Edinburgh, for this preparation of toxin

The development of scarlet fever in two nurses who had given negative Dick readings with the above test toxin, led us to try a more potent preparation This latter toxin (X48) was kindly supplied by Dr R A O'Brien of Messrs Burroughs and Wellcome A dilution of 1 in 1000 was employed for the test We are also indebted to Dr O'Brien for a supply of immunising toxin (X79) The comparative toxicity of a 1 in 1000 dilution of the two filtrates, which we shall name the Edinburgh and London toxins respectively, is indicated by the Dick test results set forth in Table I

TABLE I—*Dick Test Results Obtained with the Edinburgh and London Test Toxins*

Source of toxin	In 50 scarlet fever cases				In 71 cases other than scarlet *	
	1st to 3rd day of disease		14th to 33rd day of disease		Dick pos	Dick neg
	Dick pos	Dick neg	Dick pos	Dick neg		
Edinburgh	49	1	14	36 (72%)	27 (38%)	44
London (X18, B1962)	50	0	24	26 (52%)	42 (59%)	29

* 55 cases from 1 to 10 years of age 10 cases previous history scarlet All neg Edin, 2 pos Lond

The London filtrate was apparently of higher toxin content than the Edinburgh filtrate

Technique Employed

In applying the Dick test 0 2 c cm of a 1 in 1000 dilution of toxin was injected intracutaneously into the flexor aspect of the left forearm. As a control test 0 2 c cm of diluted toxin, previously boiled for two hours, was injected intracutaneously into the flexor aspect of the right forearm Readings were noted at 8, 24, and 48 hour intervals after the application of the test An area of erythema, 10 mm or more in diameter, was read as positive, whilst a lesser area of erythema was noted as negative Where areas of erythema appeared on both arms a study of their relative size, intensity, and duration led to the differentiation of negative-pseudo and positive-combined reactions

The protective injections were administered subcutaneously about two inches above and behind the elbow, in alternate arms, at either 5-day or 14-day intervals

Dick Test Results in Nursing Staff

In Table II we have the results of the Dick test applied to 187 members of the nursing staff

TABLE II—*Dick Test Results in Nursing Staff*

Age period in years	Total tested	Dick Neg	Dick neg pseudo	Dick pos	Dick pos pseudo	Dick pos Per cent	Pseudo reactions Per cent
18–20	99	62	9	25	3	28 3	12 1
20–25	78	47	10	19	2	26 9	15 4
25 and above	10	3	4	2	1	—	—
Totals	187	112	23	46	6	27 8	15 5

The susceptibility of members of the staff to diphtheria, as indicated by 65 per cent of positive Schick readings, apparently far exceeds their liability to contract scarlet fever The lower susceptibility rate to scarlet fever, as compared with diphtheria, may, in part, be explained by the much higher percentage (35) of girls who gave a history of having suffered from scarlet fever previous to their entering hospital than from diphtheria (10)

Zingher[1] found that in groups of nurses and students 40 to 70 per cent gave positive Dick as well as positive Schick reactions On the other hand, his positive percentage for 981 individuals of a mixed population, in the 15- to 20-year age-group, was 16 8

Does One Attack of Scarlet Fever Confer a Lasting Immunity?—Of 26 nurses who had passed through an attack of scarlet fever whilst in this hospital, 23 gave a Dick negative reading, and 3 (11 5 per cent) gave a positive reading

Active Immunisation

Dick and Dick[2] have found that it is possible to render the Dick reaction negative, in a susceptible individual, by the injection of suitable amounts of the specific toxin When the dose is excessive a reaction is produced, consisting of malaise, nausea and vomiting, temperature, and a scarlatinal rash The dose of toxin for immunising purposes is standardised in terms of the skin test dose

The preparation of toxin employed and the method of administration, have already been described We have estimated the immunising dosage in multiples of the skin test dose—*namely, 0 2 c cm of a 1 in 1000 dilution of toxin*

By means of comparative Dick tests applied to nine Dick-positive reactors the toxin content of the immunising preparation (X79, B1811) was found to approximate very closely to that of the test toxin (X48)

A second series of comparative Dick tests performed with a 1 in 1000 dilution of the immunising toxin (X79, B1811), which had been kept in the ice-chest for some nine months in a dilution of 1 in 6, indicated that there had apparently been little or no loss of toxicity on prolonged storage

Immunising Dosage—To arrive at a suitable primary protective injection gradually increasing doses of toxin from 5 to 416 skin test doses were administered to groups of Dick-positive reactors, and any resultant local and systemic symptoms noted Constitutional symptoms began to appear when the initial injection contained 208 skin test doses of toxin Two out of 8 susceptible children, from 1 to 15 years of age, who received the above dose of toxin as a primary injection developed a slight scarlatiniform rash accompanied by a rise of temperature Two subsequent injections of 416 skin test doses of toxin administered 7 and 14 days later to the same group of children produced no systemic disturbance

When a primary injection of 416 skin test doses of toxin was administered to a group of 16 susceptible individuals from 1 to 12 years of age no fewer than 13 developed systemic reactions The close resemblance of the reaction to an attack of scarlet fever was confirmed by the manifest alarm of the experienced ward sister, who, unaware of the nature of the injection, was of the opinion that an explosive outbreak of that disease had developed in her ward It was again noted that the subsequent protective injections of 416 skin test doses of toxin administered 7 and 14 days later were unaccompanied by constitutional disturbance

We finally decided to administer 200 skin test doses of toxin as a primary protective injection to susceptible members of the nursing staff Fifty-one Dick positive nurses received immunising injections To 35 of these, a course of 4 injections at 5-day intervals, of 200, 400, 800 and 1000 skin test doses of toxin was administered More recently, a course of 3 injections, at 14-day intervals, of 200, 1000, and 2000 skin test doses of toxin, has been tried in 7 nurses Nine nurses, for one reason or another, did not complete the full course

Reactions Following Immunising Injections

The local reactions were on the whole trifling In one nurse, a painful indurated area of erythema, 6 cm by 5 cm, was accompanied by an erythematous rash which extended from shoulder to hand

Fourteen nurses complained of more or less systemic disturbance following the primary protective injection Slight headache was noted in five, whilst the remainder complained of headache, nausea, or vomiting, and lassitude. Two of the latter reported slight sore-throat In no case was a rash observed One nurse was excused duty for one day, and three for two days each The symptoms appeared within a few hours of the injection, and lasted from a few hours to, in one case, three days Systemic reactions were more marked in nurses who gave a brilliant positive Dick reading of 2 5 cm. to 3 cm or more in diameter An initial immunising injection of only 100 skin test doses of toxin, administered to a nurse whose Dick reaction measured 5 cm by 3 5 cm., was followed by headache and nausea the same evening A second injection of 200 skin test doses of toxin, five days later, resulted in headache and vomiting within some eight hours of the protective inoculation There was a slight pseudo in this case 1 cm by 0 7 cm in diameter

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[1] Zingher, A Amer Jour Pub Health, November, 1924

[2] Dick G F, and Dick, G H Jour. Amer Med Assoc, July 12th, 1924

Development of Immunity

Of 35 nurses who received the full course of four injections of approximately 200, 400, 800, and 1000 skin test doses of toxin, at five-day intervals, 33 were retested Twenty (60 6 per cent) were found to be Dick negative within 6 weeks of completion of the immunising course, whilst 13 still showed susceptibility, markedly diminished in the majority.

Of seven nurses who received the course of three injections, at 14-day intervals, of 200, 1000, and 2000 skin test doses of toxin, three became Dick negative with 2 weeks, 4 within 4 weeks, and 5 (71 4 per cent) within six weeks of the administration of the last protective injection.

The administration of a second immunising course of from 1500 to 3000 skin test doses of toxin, to 13 remaining Dick positive reactors, resulted in seven becoming Dick negative within a period of four to 8 months from the completion of the primary immunising course Three were still Dick positive at four, five, and eight months, whilst the remaining three left hospital

Of the nine nurses who did not receive the full course of protective injections, five became Dick negative within two to five months of inoculation, one developed scarlet fever, which resulted in a negative Dick test in the fourth week of disease; two were still susceptible prior to leaving hospital six months later, and one has yet the course to complete

Summarising these results we find that of 42 originally Dick positive nurses, 37 (88 1 per cent) were rendered Dick negative by injections of the specific toxin, within varying periods of time up to eight months from the completion of the primary course of protective injections

Duration of Immunity.

A retest was recently applied to a group of nine nurses, who 11 months ago were found to have developed immunity subsequent to a course of protective injections Four still gave a negative Dick reading The remaining five were again Dick positive In a second group of five girls who became Dick negative subsequent to active immunisation, a retest applied eight months later revealed that two had lost their acquired immunity within that time

It was noted that those nurses in whom the period of immunity had lasted less than 8 and 11 months respectively, had shown at the original test a high degree of susceptibility to scarlet fever, as evidenced by large and brilliant Dick reactions Where the original Dick test indicated a slight susceptibility to the disease, not only was immunisation more rapidly attained, but in the few retested was still present 8 and 11 months later

Incidence of Scarlet Fever in the Nursing Staff

I regret to state that since this work was initiated some 18 months ago, two nurses, noted as Dick negative with the Edinburgh preparation of toxin, developed scarlet fever six weeks and six months respectively, after the application of the test

In one case the test, read at 8, 24, and 48 hours, gave so indefinite a reaction that we were unable to measure the area involved, and hence was noted as query negative This nurse developed undoubted clinical scarlet fever of moderate severity six weeks later A positive Schultz-Charlton was obtained with a 1 in 100 dilution of scarlet antitoxin The injection of 0 2 c cm of the patient's blood serum, obtained on the twenty-fourth day of disease, into a first day scarlet rash, produced an area of blanching 2 5 by 3 1 cm in diameter It is interesting to note that a Dick test applied on the third day of disease with the London preparation of toxin (X48), gave a frank negative reading

Another nurse, 18 years of age, who had not suffered from scarlet fever previously, when tested on Jan 11th, 1926, showed at the 8-hour reading an area of faint erythema 1 0 cm by 1 2 cm on both test and control arms At the 24 and 48 hour readings there was no reaction visible on either arm The case was noted as Dick negative On June 5th, 1926, this girl developed a mild attack of scarlet fever

Six cases of scarlet fever have occurred in Dick positive nurses In two the disease developed before the application of the test, but a positive result was obtained on the third day of disease in both cases. One nurse developed scarlet fever the day following the application of the test, and thus frustrated our recommendation that, on account of her brilliant Dick reaction, she should be excluded from duty in the scarlet fever pavilions until successfully immunised Three nurses contracted the malady 11, 27, and 60 days respectively after completing the immunising course

Annual Incidence of Scarlet Fever in the Staff

During the year 1926 five nurses contracted scarlet fever One case developed in a Dick negative reactor, whilst the other four occurred in Dick positive nurses Particulars of these four cases have already been noted above No nurse who was successfully immunised has yet contracted the disease.

In Table III is shown the annual incidence of scarlet fever in the nursing staff during the past seven years

TABLE III —*Annual Incidence of Scarlatina in Nursing Staff.*

Year	Total staff	Number of cases of scarlatina in staff	Incidence per cent	Total number of scarlatina cases admitted
1920	148	14	9 46	1382
1921	146	15	10 27	1983
1922	147	9	6 12	1559
1923	137	6	4 38	1741
1924	128	11	8 59	1604
1925	161	15	9 31	1906
1926	142	5	3 52	1612

Owing to the wide fluctuation in the annual incidence of scarlatina among the staff, it is not possible to arrive at a definite conclusion, yet it is at least encouraging, that the lowest incidence yet encountered should coincide with the application of specific measures of prevention

Conclusions

1 By the injection, at intervals of from 5 to 14 days, of gradually increasing doses of scarlet fever toxin, it is possible to render the majority of Dick positive reactors Dick negative.

2 Providing the dosage is carefully graded this can be accomplished without the development of any unpleasant or permanent ill-effects

3 Whilst active immunity can be attained by the injection of relatively small doses of toxin, its duration in cases originally strongly Dick positive is only a matter of months

4 Should a more lasting immunity be desired in marked Dick positive reactors, much larger injections of toxin than we have employed are apparently necessary.

TESTICULAR GRAFTING

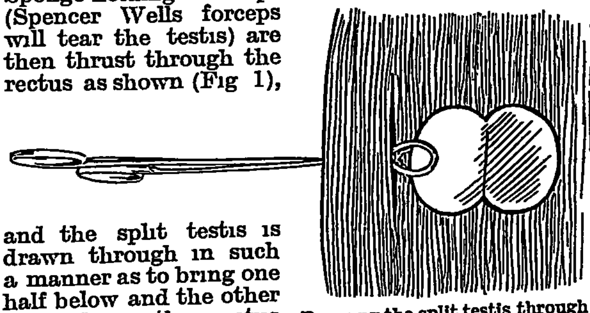
By HAMILTON BAILEY, F R C S Eng,
GILLSON SCHOLAR, SOCIETY OF APOTHECARIES, SURGEON DUDLEY ROAD HOSPITAL, BIRMINGHAM

There is no doubt that the internal secretion of the testis has a very profound effect upon the vitality of the organism The work of Voronoff has abundantly proved, in both men and animals, that the testicular hormone may be, at least temporarily, supplemented by a graft, which, in the case of man, is made from the anthropoid apes

Voronoff's operation is to implant slices of the testis into the scarified tunica vaginalis, but this can only be done in those cases in which the tunica is distended by (even a small quantity of) hydrocele fluid He states that the ideal site for the graft is within the tunica, for in this situation it is to a large extent nourished by the plasma (hydrocele fluid) which bathes it Nevertheless, from a detailed study of his cases, we glean that the intravaginal implantation is, for anatomical reasons, rarely possible Thus, of 43 cases in which operative details are given,[1] the site of the grafts was as follows (1) outside the tunica vaginalis, 30, (2) partly outside and partly inside, 12; (3) entirely inside, 1 From these figures it can be gathered that as all the groups were equally successful the secretion of the tunica can have but little effect upon the nutrition of the graft If this is so, there is nothing to recommend particularly the cellular tissues of the scrotum as the ideal site for a graft

I have grafted the testis into the sheath of the rectus abdominis on five occasions by the following technique The epididymis is cut away with scissors, and the testis split longitudinally The rectus sheath is opened, and the medial border of the rectus muscle mobilised. Sponge-holding forceps (Spencer Wells forceps will tear the testis) are then thrust through the rectus as shown (Fig 1), and the split testis is drawn through in such a manner as to bring one half below and the other half above the rectus muscle The edges of the cut surfaces are then sutured together (Fig 2) The rectus muscle offers a uniformly satisfactory site for the implanted organ, as it is exceedingly well supplied with blood by the deep epigastric vessels

Fig 1.



Drawing the split testis through the rectus muscle

In four of these cases orchidectomy had to be performed for maldescent of the testis In all cases orchidopexy was impracticable because of the shortness of the vas deferens The extirpated testis was placed in saline solution at body temperature until the inguinal wound had been sewn up The testis was then grafted into the rectus sheath of its owner

The fifth case is of sufficient interest to give some detailed notes —

J P, aged 65, was admitted to hospital on Jan 10th, 1926, with a periurethral abscess and commencing extravasation of urine For ten days he had had almost complete retention The temperature was 102° F, and he was profoundly uræmic Under intrathecal stovaine anæsthesia external urethrotomy was performed, and a catheter passed from the perineum into the bladder The infiltrated scrotum was also incised By the beginning of February, after a stormy convalescence, he had sufficiently recovered for us to contemplate the treatment of the stricture At this time it was observed that he looked very old for his years, and that his mentality was sluggish On Feb 4th it was arranged to treat the stricture by internal urethrotomy On the same day it was necessary to remove a maldescended testis from a healthy young man in whom orchidopexy had been, a year previously, attempted unsuccessfully The excised testis, which was well formed, was transplanted into the rectus sheath of the old man.

I have had this man under weekly observation for a year For six months the grafted organ could be felt in the abdominal wall undiminished in size During the seventh month it rapidly decreased, and, at the present time (January) although palpable, it is only a quarter of its original dimensions After making an allowance for an improved renal function, I am convinced that some degree of rejuvenation took place The patient's movements became quicker, his expression more alert, he volunteered the information that his neighbours remarked upon his energy, and he was able to return to work after an enforced idleness of nearly three years During the past two months I have detected some regression, but the patient remains in good health

Fig 2

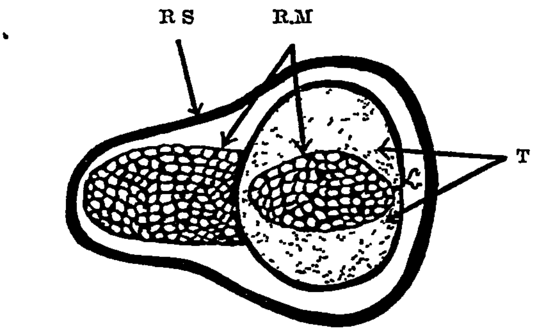


Diagram to show the relationship of the grafted testis to the rectus muscle The operation completed
R S = Rectus sheath R M = Rectus muscle T = Testis

The problem of scientifically estimating the effects of any type of rejuvenation is an exceedingly difficult one, and is not solved by the camera After performing some 25 Steinach ligations in the course of such operations as prostatectomy and herniotomy in elderly men, I am uncertain of its result On the other hand, testicular grafting appears to be a method full of promise, nevertheless, the restorative effect is probably quite temporary In a country where anthropoids are scarce and antivivisectionists abound, the utilisation of extirpated maldescended testes, which otherwise could be thrown away, offers an economical, though limited, avenue by which we may add to our knowledge

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Spa Practitioners' Association —A meeting held in London on Jan 21st was attended by 20 medical men from various British spas Dr Kerr Pringle (Harrogate) took the chair, and on the motion of Dr C W Buckley (Buxton), seconded by Dr R Ackerley (Llandrindod Wells), it was decided to form a society to be called the Spa Practitioners' Association, which should represent the interests of those engaged in spa practice Membership is to be open to all registered medical men and women practising at a British spa, the annual fee for membership being 10*s* 6*d* The following officers of the Association were appointed President, Dr Kerr Pringle (Harrogate), Secretary, Dr J B Burt (Buxton), Members of Council, Dr Vincent Coates (Bath), Dr F Clayton (Leamington), Dr R Ackerley (Llandrindod Wells), and Dr Leonard Boys (Woodhall)

Medical Societies.

TUBERCULOSIS SOCIETY

AT a meeting of this Society, held on Jan 14th, Dr JAMES WATT, the President, in the chair, Dr. C D S AGASSIZ read a paper on the

Differential Diagnosis of Non-Tuberculous Fibrosis of the Lungs

His experience of this condition, he said, was confined to cases in children, and he wished to draw attention to some points in the differential diagnosis which were not sufficiently stressed The incidence appeared to be greatest in children of from 5 to 10 years of age There was no evidence of a familial tendency. A history of an antecedent attack of broncho-pneumonia or whooping-cough was commonly met with The most constant symptom was cough, which recurred especially in the winter and was accompanied by little or no sputum. When sputum was present it was tenacious and mucopurulent There might be a good deal of dyspnœa, which, however, appeared to cause comparatively little distress Hæmoptysis was rare, but cyanosis was frequently present and was of some importance Clubbing of fingers occurred in about two-thirds of the cases. The physical signs varied with the extent of the disease The cardiac impulse was displaced; vocal fremitus might be diminished but was always present Auscultation showed the breath sounds to be diminished, dry, leathery, creaking râles were usually present but were very inconstant The temperature charts might either show a slight pyrexia of at most 101° or 102° F, which would fall in a day or two and would not be accompanied by increased respiration, or they might show a temperature rising sharply to 102° or more, remaining elevated for a week or so, and being accompanied by a respiratory rate of 30, 40, or 50 In 90 per cent of these cases the Pirquet reaction was negative, while it was a curious fact that in 10 per cent the Wassermann reaction was positive Radiography was of great importance in cases of non-tuberculous fibrosis The cardiac shadow was often displaced Shadows were to be seen at the root of the lung and radiating from it, varying from slight streaks to dense striations The diaphragmatic shadow was irregular, and "peaking" would often be found on the inner two-thirds of the diaphragm, being probably due to adhesions The root-shadows and basal shadows might be more marked in one lung, but were usually seen in both

The subjects of non-tuberculous pulmonary fibrosis, seemed, said Dr Agassiz, liable particularly to secondary infections—e g, otorrhœa, tonsillitis, and skin diseases such as impetigo In pulmonary tuberculosis there was in about 80 per cent of cases a history of contact with tuberculous *infection* The history also frequently recorded influenza or hæmoptysis, whilst often the disease was only discovered during a routine examination at school The sputum was more profuse than in pulmonary fibrosis Hæmoptysis was frequent, but cyanosis was comparatively rare unless fibrosis was also present Clubbing was usually absent or inconspicuous The percussion note was impaired chiefly over the apex, adventitious sounds also were usually present there, and were more constant than in non-tuberculous fibrosis Respiration might be normal, but the pulse-rate was usually increased Radiography generally showed a woolly mottling at the apex or radiating down from it The diaphragmatic outline was less irregular than in fibrosis Septic complications were not common, and when present they were of the type usually associated with pulmonary tuberculosis—e g, pleurisy

The question arose, continued Dr Agassiz, whether these two pictures might not represent different stages of tuberculosis Personally he was no believer in the so-called hilum tuberculosis Many cases began in infancy He had under his care at that time six infants who showed all the signs he had enumerated as typical of fibrosis The root shadows were only slightly increased. There was a definite contrast between the physical signs and the X ray picture in the two conditions, and another important distinction was the high percentage of negative Pirquet reactions in cases of fibrosis It had sometimes been suggested that the tubercle bacillus might start the process and then die out or give rise to a peribronchial tuberculosis He thought this sequence might occasionally take place, but probably not often, and it was difficult to see why the fibrosis should increase The presence of cyanosis was also suggestive of fibrosis rather than of peribronchial tuberculosis It had been shown that one-third of the lung area must be involved to produce cyanosis, and it was impossible to believe that one-third of the alveoli could be affected and yet give rise to no increase of root shadows The after-history of the cases was also important In a series of 50 cases of fibrosis, no less than 48 were still alive after three to four years, and all of these were at work Lastly, there was the question of post-mortem evidence, which was suggestive, though not yet conclusive He had had one or two post-mortem examinations on cases which had died of fibrosis, and sections examined microscopically showed no signs of tuberculosis

Other diseases, said Dr Agassiz, in conclusion, might also sometimes cause difficulty in diagnosis Chronic bronchitis was uncommon in children, the chest tended to become emphysematous, and the percussion note hyperresonant There was no displacement of the heart Pleural effusion could be diagnosed by the exploring needle. Thickened pleura might present some difficulty, but in any case the condition was probably always present to some extent in fibrosis of the lung In broncho-pneumonia diagnosis might not be possible during the height of an attack

Discussion

The PRESIDENT said that he found it difficult to get over the fact of a negative Pirquet in so many cases If Dr Agassiz were right, it meant that about one-third of the children that were being sent to sanatoriums were being sent unnecessarily What happened to these children afterwards? They ought to turn into typical cases of bronchiectasis, but he doubted whether they did so, and whether there were enough cases of bronchiectasis to go round

Dr G. T HEBERT said that he had followed up some of these cases of fibrosis for 10 or 12 years He had often been struck with the physical well-being of the children who had extensive physical signs He agreed with Dr Agassiz that most of the cases were non-tuberculous, although the point could not be definitely settled till after the cases had been followed for a longer period At one time he had come across two or three cases of pulmonary fibrosis associated with enlarged cervical glands, and would like to know whether this was a common association The presence of moist sounds in the chest was difficult to account for in the comparative absence of sputum; possibly it was due to a certain amount of œdema He agreed strongly with the statement as to the importance of radiography in these cases Fibrous tissue, he thought, did not show up on X ray pictures as much as radiologists believed, lack of opacity was striking in these cases of non-tuberculous basal fibrosis He looked upon these cases as the main source of bronchiectasis in adults, but the course taken by the disease naturally depended on the resistance in any given case

Dr MACDONALD concurred with Dr Hebert's views as to the X ray appearance in cases of fibrosis, instancing a case of his own in which physical signs were found on the side which was most translucent on the screen

Dr G B PRICE said that he was not clear whether the fibrosis mentioned by Dr Agassiz was localised or general Vascular conditions almost certainly gave rise to fibrosis He himself labelled cases as tuberculous with reluctance, but he had followed up a

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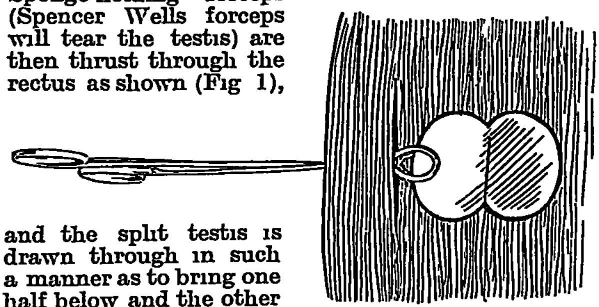

Drawing the split testis through the rectus muscle

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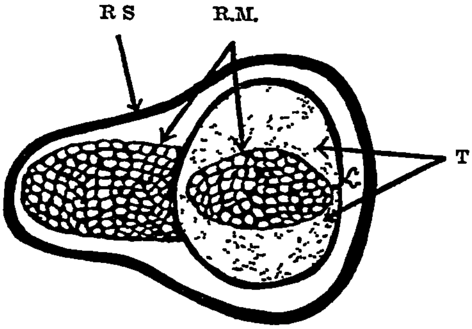

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At a meeting of this Society, held on Jan. 14th, Dr. **James Watt**, the President in the chair, Dr C D S **Agassiz** read a paper on the

Differential Diagnosis of Non-Tuberculous Fibrosis of the Lungs.

His experience of this condition, he said, was confined to cases in children, and he wished to draw attention to some points in the differential diagnosis which were not sufficiently stressed The incidence appeared to be greatest in children of from 5 to 10 years of age There was no evidence of a familial tendency A history of an antecedent attack of broncho-pneumonia or whooping-cough was commonly met with The most constant symptom was cough, which recurred especially in the winter and was accompanied by little or no sputum. When sputum was present it was tenacious and mucopurulent There might be a good deal of dyspnœa, which, however, appeared to cause comparatively little distress Hæmoptysis was rare, but cyanosis was frequently present and was of some importance. Clubbing of fingers occurred in about two-thirds of the cases The physical signs varied with the extent of the disease The cardiac impulse was displaced; vocal fremitus might be diminished but was always present Auscultation showed the breath sounds to be diminished; dry, leathery, creaking râles were usually present but were very inconstant The temperature charts might either show a slight pyrexia of at most 101° or 102° F, which would fall in a day or two and would not be accompanied by increased respiration, or they might show a temperature rising sharply to 102° or more, remaining elevated for a week or so, and being accompanied by a respiratory rate of 30, 40, or 50 In 90 per cent of these cases the Pirquet reaction was negative, while it was a curious fact that in 10 per cent the Wassermann reaction was positive Radiography was of great importance in cases of non-tuberculous fibrosis The cardiac shadow was often displaced Shadows were to be seen at the root of the lung and radiating from it, varying from slight streaks to dense striations The diaphragmatic shadow was irregular, and "peaking" would often be found on the inner two-thirds of the diaphragm, being probably due to adhesions The root-shadows and basal shadows might be more marked in one lung, but were usually seen in both

The subjects of non-tuberculous pulmonary fibrosis, seemed, said Dr Agassiz, liable particularly to secondary infections—e g, otorrhœa, tonsillitis, and skin diseases such as impetigo In pulmonary tuberculosis there was in about 80 per cent of cases a history of contact with tuberculous infection The history also frequently recorded influenza or hæmoptysis; whilst often the disease was only discovered during a routine examination at school The sputum was more profuse than in pulmonary fibrosis Hæmoptysis was frequent, but cyanosis was comparatively rare unless fibrosis was also present Clubbing was usually absent or inconspicuous The percussion note was impaired chiefly over the apex, adventitious sounds also were usually present there, and were more constant than in non-tuberculous fibrosis Respiration might be normal, but the pulse-rate was usually increased Radiography generally showed a woolly mottling at the apex or radiating down from it The diaphragmatic outline was less irregular than in fibrosis Septic complications were not common, and when present they were of the type usually associated with pulmonary tuberculosis—e g pleurisy

The question arose, continued Dr Agassiz, whether these two pictures might not represent different stages of tuberculosis Personally he was no believer in the so-called hilum tuberculosis Many cases began in infancy. He had under his care at that time six infants who showed all the signs he had enumerated as typical of fibrosis The root shadows were only slightly increased. There was a definite contrast between the physical signs and the X ray picture in the two conditions, and another important distinction was the high percentage of negative Pirquet reactions in cases of fibrosis It had sometimes been suggested that the tubercle bacillus might start the process and then die out or give rise to a peribronchial tuberculosis. He thought this sequence might occasionally take place, but probably not often, and it was difficult to see why the fibrosis should increase The presence of cyanosis was also suggestive of fibrosis rather than of peribronchial tuberculosis It had been shown that one-third of the lung area must be involved to produce cyanosis, and it was impossible to believe that one-third of the alveoli could be affected and yet give rise to no increase of root shadows The after-history of the cases was also important. In a series of 50 cases of fibrosis, no less than 48 were still alive after three to four years, and all of these were at work. Lastly, there was the question of post-mortem evidence, which was suggestive, though not yet conclusive He had had one or two post-mortem examinations on cases which had died of fibrosis, and sections examined microscopically showed no signs of tuberculosis

Other diseases, said Dr. Agassiz in conclusion, might also sometimes cause difficulty in diagnosis Chronic bronchitis was uncommon in children; the chest tended to become emphysematous, and the percussion note hyperresonant There was no displacement of the heart Pleural effusion could be diagnosed by the exploring needle. Thickened pleura might present some difficulty, but in any case the condition was probably always present to some extent in fibrosis of the lung. In broncho-pneumonia diagnosis might not be possible during the height of an attack

Discussion.

The **President** said that he found it difficult to get over the fact of a negative Pirquet in so many cases. If Dr Agassiz were right, it meant that about one-third of the children that were being sent to sanatoriums were being sent unnecessarily. What happened to these children afterwards? They ought to turn into typical cases of bronchiectasis but he doubted whether they did so and whether there were enough cases of bronchiectasis to go round.

Dr G T. **Hebert** said that he had followed up some of these cases of fibrosis for 10 or 12 years. He had often been struck with the physical well-being of the children who had extensive physical signs He agreed with Dr Agassiz that most of the cases were non-tuberculous, although the point could not be definitely settled till after the cases had been followed for a longer period At one time he had come across two or three cases of pulmonary fibrosis associated with enlarged cervical glands, and would like to know whether this was a common association The presence of moist sounds in the chest was difficult to account for in the comparative absence of sputum; possibly it was due to a certain amount of œdema. He agreed strongly with the statement as to the importance of radiography in these cases. Fibrous tissue, he thought, did not show up on X ray pictures as much as radiologists believed; lack of opacity was striking in these cases of non-tuberculous basal fibrosis He looked upon these cases as the main source of bronchiectasis in adults, but the course taken by the disease naturally depended on the resistance in any given case

Dr **Macdonald** concurred with Dr. Hebert's views as to the X ray appearance in cases of fibrosis, instancing a case of his own in which physical signs were found on the side which was most translucent on the screen

Dr G B **Price** said that he was not clear whether the fibrosis mentioned by Dr Agassiz was localised or general. Vascular conditions almost certainly gave rise to fibrosis He himself labelled cases as tuberculous with reluctance, but he had followed up a large number of adult patients who had been diagnosed as fibrotic, and after some years tubercle bacilli had been found in the sputum of a certain number of them

Dr P A GALPIN said that he had come across a great number of cases in which there had been repeated attacks of broncho-pneumonia with a history of cough but a paucity of symptoms and a good general condition Such cases, giving abundant physical signs but few symptoms, were probably non-tuberculous There seemed to be here some analogy with cases of bone disease—tuberculosis contrasted with sclerosis of the bone The tendency to destruction was greater in tuberculosis, while the tendency to sclerosis was greater in pyogenic conditions The final test in both groups must be pathological

Dr C F PEDLEY said that at one time he used to receive cases unlabelled Nearly all these were associated with a nasopharyngeal condition As a school medical officer, he hardly ever diagnosed tuberculosis, a nasopharyngeal catarrh was usually present

Dr T R ELLIOTT agreed with the lecturer that a large number of cases were wrongly diagnosed as tuberculous. In Shropshire he had had cases with enlarged mediastinal glands in which there was definite fibrosis at the root of the lung He wondered whether the fibrosis in such cases was congestive, due to pressure from the enlarged mediastinal glands A history of contact with tuberculosis was an important point in the diagnosis, as was also a peculiar smell of sweat associated with tuberculosis

Dr BRAND thought that the fibroid type of tuberculosis was uncommon in children under 15 years of age, owing to the lack of resistance He believed that bronchiectasis began at a much earlier age than the speakers appeared to think Fibrosis merely represented the reaction of the tissues to a bacterial agent, it was symptomless and signless Every degree could be present up to an extreme fibrosis causing interference with blood-vessels, alveoli, and bronchi He also was a believer in the theory of Dr Agassiz, and had no difficulty in looking upon these cases as non-tuberculous He thought that a child who had pulmonary fibrosis plus bronchiectasis had very little chance of getting through to adult life without being notified several times over as suffering from pulmonary tuberculosis

Dr. F R WALTERS said that the points of difference between the two conditions seemed clear in children, but diagnosis was not so easy in adults

Dr C ROPER said that he had met with a large number of persons suffering from miner's phthisis, and was convinced of the widespread existence of non-tuberculous fibrosis, although it might happen sometimes that tuberculosis was engrafted upon it later on

Reply

Dr AGASSIZ, in reply, spoke of the after-history of the patients A certain number of cases, he believed, went on to bronchiectasis, others in adult life were labelled chronic bronchitis; some would probably clear up altogether Lipiodol might throw a good deal of light upon some of these cases Some probably did develop tuberculosis afterwards He thought that cervical adenitis undoubtedly did occur in association with fibrosis Interlobar pleurisy was probably not as uncommon as was sometimes believed, and it might quite well lead to fibrosis One or two speakers had referred to the comparative rarity of pulmonary tuberculosis in children About one-third of his own cases had tubercle bacilli in the sputum, and more than these had bacilli in the fæces He had had quite a number of patients, aged three, who had had positive sputum Symptoms in fibrosis were undoubtedly less complained of by children He agreed that chronic nasopharyngeal infectious conditions were extremely common and might very possibly cause fibrosis, and he thought that fibrosis was more common in both children and adults than was usually recognised

The PRESIDENT suggested that tuberculosis officers might help in the elucidation of the question by a careful following up of their cases of fibrosis

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY

AT a meeting of this Section held on Jan 20th Dr J H SEQUEIRA, the President, took the chair and Mr. H. S. SOUTTAR demonstrated the

ACTION AND USES OF A STEAM-HEATED CAUTERY

which has been described by him in THE LANCET[1] The use of heat coagulation, he said, in the destruction of malignant growths often had advantages over their removal by direct surgery When properly used there was no hæmorrhage, and it was thus possible to deal with fungating masses where the direct control of hæmorrhage by ordinary surgical methods was impossible Provided the heat was applied at a low enough temperature, any degree of penetration could be obtained, and a dense covering of coagulated tissue was formed which allowed the deeper tissues to granulate under ideal conditions of asepsis These results had usually been obtained by means of diathermy, but it had appeared to him that they could be got more simply and effectively with an applicator maintained at a constant temperature by a current of dry steam His apparatus consisted of a small boiler in which "Meta Fuel" was used as a source of heat The steam was slightly superheated by being carried directly through a flame, and was conveyed by a thick rubber tube to an insulated handle This terminated in a nozzle on to which applicators of various forms and dimensions could be screwed, and the steam, after passing through the applicator returned by the handle to the discharge tube The applicator was thus kept at a constant temperature of approximately 100° C, and so long as it was kept in contact with the tissues heat slowly penetrated and produced coagulation, as the temperature of the applicator was absolutely constant the depth of penetration could be gauged with great accuracy With large applicators, and on moist tissues, penetration occurred at a rate of about one inch in ten minutes With small applicators minute defects such as spider nævi could be destroyed in a few seconds The range of applicability was therefore very large, and the instrument could be used with equal facility for the destruction of huge masses of fungating carcinoma and for the removal of minute cutaneous defects The method had been found of peculiar value in the treatment of epithelioma of the skin arising on a scarred surface, e g, after treatment for lupus and similar conditions by X rays In such cases excision would leave a widely gaping wound which could only be closed with great difficulty With the steam cautery these growths could usually be destroyed quite easily under local anæsthesia, and when the slough separated a granular surface was left which was easily covered by epithelium

Mr. Souttar then described and showed a number of cases, most of which were reported in article already referred to

Dr H SEMON showed three cases treated by the method

1 —Carcinoma on lupus treated by X rays in 1904 The patient, a man aged 65, had suffered from lupus vulgaris of the right side of his face and nose for over 20 years When he was seen at the Royal Northern Hospital in March 1926, there was a moist fungating tumour in the midst of a patch of X ray atrophy on the right cheek The growth had extended deeply into the subcutaneous tissue and through the buccinator muscle Under general anæsthesia the tumour was scraped away, over a palpating finger placed in the patient's mouth This enabled the operator to ascertain that the mucous membrane was still intact The exposed area was then treated with the steam cautery in its full extent, and for a distance of about half an inch beyond its apparent limits The lesion healed completely in three weeks

This case, said Dr Semon, illustrated a notable advantage over diathermy inasmuch as with a finger in the mouth it was very simple to estimate by the increasing heat the exact moment at which the application had to be stopped Such a procedure was not feasible with an electrical coagulation method. The same very practical point was illustrated by the following case :—

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[1] THE LANCET, 1926, i, 805

2 —A man aged 63. came to hospital on March 10th. 1925, with a septic cauliflower growth on the left ear. The cartilage of the tragus and helix was definitely involved. There was no apparent glandular infection The epithelioma was treated by diathermy, but recurred in September. The second attempt to eradicate it by this method resulted in a perforation of the cartilage. In September 1926, growth had again recurred and on this occasion—after a preliminary excochleation with the sharp spoon, Mr. Souttar's cautery was applied. The result to date is certainly encouraging the only evident relic being the hole left by the second attempt to cure by diathermy, an accident which would have been impossible if the steam cautery had been used in the way suggested in case (1)

3 —A girl of 19 in August of last year asked for the removal of a small hairy mole over the right angle of lower jaw The steam cautery was applied for about 10 seconds to the small stigma.

The result of this treatment, said Dr. Semon. well illustrated a complication whose possibility would have to be taken into account if the instrument was to be used for the treatment of cosmetic defects A keloidal scar such as was fairly common after burns, had developed. and would require treatment with radium. He was of opinion however. that these and other cases confirmed the claims put forward on behalf of this new instrument He thought that it had considerable advantages over diathermy. It was cheap to buy and run could be carried from place to place. and was independent of an electric circuit and did not have the occasional breakdowns to which the diathermy plant was liable Above all it was easy to manipulate and reasonably safe in the hands of any but the most inexperienced.

Dr **ARTHUR WHITFIELD** inquired about the rate of penetration, which, he presumed, diminished with increasing depth from the surface

The **PRESIDENT** said that he was able to support the statements made. from direct experience of the results of the treatment at the London Hospital The results in some cases had been truly remarkable.

Mr. **JOHN EVERIDGE**, Dr. **J. M. H MACLEOD**, and Dr. **M. S. THOMSON** also took part in the discussion.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

AT a recent meeting of this Society, Dr. **JOHN COWAN**, the President, in the chair, Mr **R B CARSLAW** read a paper on

UNDUE MOBILITY AND PROLAPSE OF THE ASCENDING COLON

as a factor in the causation of various abdominal conditions, based on the results of 242 cases treated by colopexy. An early symptom attributable to prolapse of the ascending colon, said Mr Carslaw. was discomfort after food with more or less flatulence, developing later to actual pain which was characteristically variable and inconstant Later there were loss of appetite. increasing flatulence, and frequent bilious attacks, with headache nausea, and malaise. Constipation might or might not be noticed at first, but was invariably present in the later stages. Finally toxic phenomena occurred, such as progressive wasting. pigmentation of the skin chronic mastitis, and, most important of all, mental changes These symptoms were observed in certain groups. which justified classification of the cases into clinical types according to whether they were duodenal. gastric, or referable to the right iliac fossa or elsewhere Referring to the diagnosis of chronic appendicitis, Mr Carslaw said that he considered that there was no such disease. and emphasised the distinction between current attacks of true inflammatory appendicitis and the condition of choked appendix with appendicular colic, unaccompanied by inflammation. Some authors described renal and biliary types associated with attacks of renal and biliary colic, but in his own series these symptoms were additional to the other symptoms. and the patients were not classified in a separate category. Mucous colitis and chronic duodenal ileus were occasional late results

Mr. Carslaw went on to discuss treatment under three headings: (1) preventive: (2) curative by suitable diet, laxatives, and exercises and (3) operative The proper operative procedure. he thought. was to correct the undue mobility and prolapse of the cæcum and ascending colon by Waugh's colopexy. In certain cases fixation of the cæcum was sufficient. but in others not only must the whole ascending colon be fixed. but it was necessary to suspend the right half of the transverse colon as well. Restriction in the undue mobility seemed to be as important as correction of the prolapse or. perhaps, more important still. Any developmental membranes should also be divided. and if there was kinking of the gall-bladder. with stagnation of its contents, it might be necessary to suspend or even drain it after division of its ventral membrane. The appendix, if present should be removed. except in those cases of severe mucous colitis in which appendicostomy was required in addition to colopexy. Where there was marked hepatosis its correction might be helped by shortening the round ligament The right kidney and the uterus should be left alone.

Mr Carslaw summarised as follows the clinical results of 242 consecutive colopexies performed between March. 1920, and July. 1926 :—

Sex and Age Incidence

Age.	Under 9	10–19	20–29	30–39	40–49	50–59	60–69	Total.
Female	1	19	63	57	33	11	1	185
Male	0	9	10	24	9	3	2	57
Total	1	28	73	81	42	14	3	242

Results

Years since operation.	Less than 1	1–2	2–3	3–4	4–5	5–6	6–7	Total.	%
Cured .	10	20	30	31	23	41	13	168	70·3
Very much improved	5	6	13	5	6	5	4	44	18·4
Failures .	0	5	5	5	4	3	5	27	11·3

In the great majority of cases he said, the symptoms disappeared within a few months of operation. The appetite. which had usually been very fickle. rapidly improved, and patients often reported that they were able to eat "anything and everything." The former "bilious attacks" especially in the duodenal type of case, persisted for some months but were much less frequent and very much less severe. Although the characteristic pain. either after food or in the right iliac fossa, soon disappeared, a considerable degree of discomfort was felt in some cases in the right side of the abdomen : this worried the patient for about a year The recovery from constipation—however obstinate it might have been—was one of the most satisfactory results Sometimes a degree of constipation persisted, but as a rule the condition was absolutely cured Another satisfactory result noted in many cases was the disappearance of menstrual irregularities. this occurred too frequently to be mere coincidence There was usually a rapid improvement in general nutrition with steady increase in weight, and the mental outlook was brighter Of the 212 patients who were satisfied with their present condition. 44, although very much improved, were not in his opinion, cured, as they still had some discomfort, occasional flatulence, or some degree of constipation, or had failed to put on weight The remaining 168 were absolutely cured, and that the cure was permanent could be seen from the number of years that had elapsed since operation

Discussion

Mr **ALEXANDER MCLENNAN** said that in 1925 he had performed colopexy by Waugh's method in 20 cases His object in opening the abdomen, however, had been to remove a suspicious appendix. He believed that the appendix ought to be removed on suspicion, and he wholly disagreed with Mr. Carslaw's contention that there was no such thing as chronic appendicitis The benefits which followed from colopexy were sometimes extremely striking It was always difficult to explain the benefit of fixation when the mechanics of the colon were considered It seemed rather absurd to suppose that the ascending colon dragged on the liver, for one of the clinical signs of ascites was that the intestine floated upwards The weight of the ascending colon was a negligible quantity, and he failed to see how it could influence the causation of duodenal ulcer, gall-stones, or any other out-of-the-way disease He could not believe that the ascending colon, by its weight, could drag on any other structures in the abdomen at all. It used to be said that the kidney pushed the ascending colon down but he did not think that the ascending colon ever, pulled the kidney down. Mr Carslaw had mentioned in connexion with Waugh's operation the straightening of the hepatic flexure He (the speaker) suggested that one of the beneficial effects of Waugh's operation was the production of a kink at the hepatic flexure What passed the hepatic flexure then passed it permanently The mechanics of the abdomen and the question of abolishing mobility in the ascending colon were not so simple as they had been led to suppose

Since 1905 at least, said Mr McLennan, he had been in the habit of fixing all cæcums, that he thought were exceedingly mobile He had followed up several of the cases so dealt with, and he thought the procedure resulted in considerable benefit Another benefit was the obliteration of the intercolic membrane Mr Carslaw wanted them to believe that the drop in the ascending colon was the initial process in enteroptosis, but it was an absence of muscular energy which allowed the prolapse If in Waugh's operation a very good pit was made and the ascending colon was put into it, the hepatic flexure came close to the kidney. If the hepatic flexure was pushed from an anterior to a posterior position it was pulled upwards and thus spread out Radiograms ought to be taken from the side to show the colon passing back into the loin Cases of mobile cæcum were being constantly met with In one man of 65, for instance, who had never been ill in his life, the first symptoms of the mobile cæcum were due to volvulus causing sudden intestinal obstruction Tucking-in of the ascending colon allowed the musculature to contract, it made the whole colon shrink and acted as a great support to it In another case presenting symptoms of chronic obstruction, the descending colon, on exploration, looked as if a Waugh's operation had been done on it Mobilisation of the colon cured the condition It must not be forgotten that sometimes striking results were obtained from very slight interference in the abdomen He thought Mr Carslaw incorrect in saying that children had highly placed ascending colons A great deal was said about the ills of humanity being due to the upright position, but he thought the majority of the ills of humanity were due to the want of the upright position

Another Series of Cases

Mr W A **SEWELL** said that colopexy was often denounced most bitterly by those who had little knowledge of the operation If critics would inform operators of their failures, much useful information would be obtained A definite conclusion could only be reached by the analysis of a large number of cases over a considerable period Since 1920 the operation had been performed in the Victoria Infirmary by himself or Mr Macrae in 127 cases Of these patients he had been able to trace only 69, of whom 32 were perfectly well, and 16 much improved In 21 cases the operation had failed, and four of these patients had later died (acute meningitis, tuberculosis, excision of gastric ulcer, and cause unknown) He had deliberately treated two cases by colopexy where the pylorus was under suspicion, but a gastrojejunostomy had been required later and had been followed by marked improvement

Some criticised the operation, said Mr Sewell, on the ground that the symptoms were often due to appendicitis, which was cured by removal of the appendix when colopexy was done Some of the cases were found on admission, or at a later date, to have an appendix normal in size and appearance, but in addition there was a large, loose cæcum which could easily be pulled out of the wound The true diagnosis in these cases was, in his opinion, a volvulus of this loose cæcum Appendicitis was now so well known to the public that the appendix often got credit to which it was not entitled Lichty had reported in 1923 on a series of 400 cases of "chronic appendicitis" Of these, 225 had been cured, in 175, therefore, there had been a mistake in the diagnosis Colopexy was not an alternative to gastrojejunostomy for cases of pyloric ulcer, but was an attempt to prevent the formation of ulcers, and to remove the pull of the loaded ascending colon in that and other regions It was an attempt to cure the symptoms accompanying local and general visceroptosis Colopexy, he thought, undoubtedly lessened and often removed the pain associated with floating kidney, certainly it restricted its movements The results of the operation were by no means perfect, but they were encouraging, and the operation was worthy of further investigation

Criticism of Claims for the Operation

Mr **DONALD DUFF** regarded the claims put forward for the operation as extravagant Common dyspepsia, constipation, gastric ulcers, mesenteric ileus, and even dysmenorrhœa had been put forward as results of a mobile colon, but mobility of the cæcum and ascending colon were normal conditions, and a fixed colon would be the abnormal condition Much had been said about the presence of bands about the lower ileum and cæcum as being of developmental origin, and Lane's ileal kink had been spoken of as one of these. He had had pieces of these bands removed at operation, and had subjected the parts to culture, with the result that *Bacillus coli* had been grown from practically all of them, proving that *the bands were inflammatory in origin and secondary* to constipation A mobile cæcum was frequently seen at abdominal operations, but every case he had seen of such a condition had also a "last kink" well developed If developmental error was the cause of mobile colon, as claimed by Mr Carslaw, it was curious that women should have been selected by nature for the exhibition of this deficiency in the proportion of over 3 to 1, as stated in Mr Carslaw's statistics These figures in fact proved that the enlargement and mobility of the cæcum was secondary to the constipation prevalent in the female sex, it was due not to developmental error but to bad habits He had been able in many instances to cure these cases of obstinate constipation by division of the bands alone without colopexy Colopexy could not be adequately performed without division of Lane's bands, but it was the division of the bands and not the colopexy which produced any good result

Appendicitis and Colopexy

Mr. **ROBERT TENNENT** said that Waugh's operation was attractive because it did not deform nor interfere with the normal physiological action of the bowel, and because it held out prospects of eliminating the dangerous and inefficient methods of colectomy and short circuit Still the claim was so great that he felt a little sceptical He himself had been much impressed by the results of colopexy Nearly all his own cases had been of the right iliac fossa type Hardly a week passed in hospital without an urgent case being admitted labelled "appendicitis," in which the main symptom was pain in the right iliac fossa Some of these patients had been dismissed without operation and later had been readmitted. On operating, it was invariably found that there was a very mobile cæcum, and in these cases simple removal of the appendix would probably be nearly valueless Appendectomy for so-called chronic appendicitis was useless if the cæcum was mobile He had traced about 60 cases where cæcopexy had been performed, and was very pleased with the results With regard to colopexy he could not speak with the same freedon He had rarely done an exploratory operation with the idea of performing colopexy, but he had done colopexy in cases where he had opened the abdomen for some other condition In these cases he was convinced that the operation had been well worth while He had also been struck by the fact that in the few cases of colopexy in males the results had been very unsatisfactory In each of these cases the patient had probably suffered from what Mr McLennan called defective innervation of the colon, for great dilatation was present In such cases there had been no beneficial results whatever. He thought that the relative frequency of the loose colon in women was due to repeated pregnancy With regard to the transverse colon, Waugh's main point was that the ascending colon was the first part of the bowel which had to propel against the force of gravity. The transverse was in a better mechanical position for dealing with the contents than a mobile ascending colon A mobile ascending colon had a lot to do with chronic duodenal ileus, and its correction sometimes had very beneficial results

Experience of the Results

Dr. JOHN RITCHIE, giving details concerning some 30 of his patients on whom Mr Carslaw had operated, said that it was impossible to be apathetic or indifferent when the state of these patients before operation was contrasted with their present condition Some had had pain at a varying period after meals, with flatulence, eructations, gurglings, and splashings Some had had pain a considerable time after meals, with attacks of vomiting One had had such severe pain that a pin-hole perforation of a duodenal ulcer was suspected One had had mucous colitis in addition to other symptoms In some cases the pain had been referred to regions other than the abdomen—e g, the heart, the back, the pelvis, the leg Many suffered from depression, sleeplessness, and obstinate constipation, and some had had previous operations His notes in many cases extended over a considerable period, some of them dating from 1907, and they showed that the patients had been never long off the sick list, turning up with monotonous regularity as semi-invalids He considered the results in practically all his cases to be most satisfactory, relative or absolute health being restored by the operation

Dr WALLACE ANDERSON said that all the cases in his series (operated upon by Mr Carslaw) were drawn from the east end of the city, where conditions were unfavourable to complete and speedy convalescence from any abdominal operation Of 11 cases, he considered that seven were complete "cures," inasmuch as they were now free of symptoms and quite able to carry on their pre-operation duties Of the remaining four, two patients admitted improvement, being able to work, but not being as well as they ought, and hoped, to be Of the other two cases one had a gastrojejunostomy performed some years previously, with no remission of symptoms, and the result of his colopexy was still uncertain The last case had been, he thought, a complete failure She was a typical "abdominal woman" who had had two abdominal operations, presumably gynæcological, without benefit In answer to the criticism that Waugh's operation was effective because it removed a chronically inflamed appendix, he was able to state that in all his cases the appendix had been to all appearance normal His own conclusion, reached after observation of a small number of cases over a number of years, was that colopexy had a definite place in abdominal surgery and deserved careful consideration

Dr W M KNOX said that during the last five years he had had 18 cases treated by colopexy, ten of them had been of long standing and had symptoms of chronic gastro-intestinal intoxication, such as mucous colitis, anæmia, anorexia, constipation, and nervous symptoms All these cases had been treated by dieting, rest for varying periods, and intestinal antiseptics, with only temporary relief. All welcomed operative treatment as a possible escape from their prolonged suffering, and with only two exceptions the results had been satisfactory In three of the other cases the appendix had been previously removed without any amelioration of the condition, but after colopexy recovery was complete The remaining five cases had been of the gastric type of comparatively short duration and were completely cured He therefore welcomed the operation as a satisfactory means of treating a condition which medical treatment had failed to help

Mechanism of Cure

Dr DOUGLAS RUSSELL said that he found difficulty in understanding why, if a mobile cæcum was such a very important factor in the causation of duodenal ulcer, only 10 per cent of these cases were associated with duodenal ulcer There seemed to be a discrepancy Many of the cases were said to be associated with defective innervation, but his opinion was that it was the mentality of the patient that was at fault Dr. Russell showed an X ray film of a patient with a mobile cæcum treated by colopexy four years previously The film showed the cæcum lying in the deepest point of the pelvis, and the stomach atonic and greatly ptosed Yet the patient was undoubtedly cured by operation, although the colopexy had been a complete failure The difficulty was to estimate whether patients of the "mental" type were likely to benefit by operation Such patients could be diagnosed almost at sight by their flabby aspect and stance, due to a wide sigmoidal curve of the vertebral column

Mr JAMES TAYLOR said that it had been suggested that the various bands occurring in connexion with the bowel were congenital in nature and were not acquired as the result of downward traction by the loaded intestine It was perfectly true that there were congenital bands, because the bowel must be supported in some way, even in the child But the bands that Lane had so aptly described as the "crystallisation of lines of force," developed within the congenital folds The one at the termination of the ileum was oftenest seen, not because it was actually the commonest, but because it occurred in the region of the abdomen most often explored by the surgeon It would be seen that this band was a dense white fibrous fascia between the layers of the mesentery, and the under surface of this mesentery had to be cut through to allow of this band being divided. It was a structure that had formed in a congenital fold Mr Taylor suggested that the benefit resulting from colopexy was due to straightening of the terminal ileum This part of the bowel formed a very acute arch, with the cæcum and last inch of the ileum on one side and the next portion of the ileum on the other Lane obtained his result by dividing the band supporting the summit of the arch, whilst Waugh, by fixing the cæcum and ascending colon at a higher level than they were before brought the outer limb of the arch into line with the inner limb As Lane also straightened out the kinked pelvic colon, colopexy was really a modification of part of Lane's operation

Mr JAMES RUSSELL also spoke, and Mr CARSLAW concluded the discussion with a reply.

EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting of this Society held on Jan 12th, Prof. R W JOHNSTONE, the President, in the chair, Dr JAMES YOUNG read a paper entitled

Recurrent Pregnancy Toxæmia and its Relation to Placental Damage

In 1914, he said, he had brought before the society evidence suggesting that the eclamptic phenomenon was caused by absorption of toxic elements rapidly elaborated in a mass of dying placenta Since then it had been shown in other connexions that extremely toxic materials, such as histamine and tyramine, might be produced from disintegrating tissue He had at that time described the placental lesion, and, as Strachan had shown recently, his general views had since been confirmed by Clamenz, M'Nalley and Dieckmann, Adair, Soli, and others The assault on the placenta was of such a kind that if it operated over a considerable area of the organ it might cause immediate ending of pregnancy by abortion, premature labour, or accidental hæmorrhage, without toxæmia Where, however, the damage was less marked, it might be consistent with continued life of the fœtus, and, therefore, with the time necessary for the development of the toxic elements responsible for the eclamptic attack Such a view was in harmony with the well-known facts that no essential part of the eclamptic process was direct damage of the fœtus, the life of which might be unharmed even in the most fulminating case, and that, on the other hand, severe eclampsia might suddenly subside after the intra-uterine death of the fœtus and the consequent complete detachment of the placenta

Dr. Young brought forward new evidence derived from a study of 220 successive cases of toxæmia and accidental hæmorrhage in parous women in the Edinburgh Royal Maternity Hospital It was found that in eclamptic cases there was a recurrence of eclampsia or non-convulsive toxæmia in over 30 per cent. This was clearly an underestimate because it did not allow for those cases in which the toxæmia occurring in the last pregnancy, for which the patient was admitted to hospital, was the first of a recurring sequence In addition there was in eclamptic cases a 40 per cent chance of the occurrence in successive pregnancies of abortion, premature labour, accidental hæmorrhage, or stillbirth Examples of this sequence were the following series of pregnancies —

Case A —(1) Premature, (2) and (3) eclampsia
Case B —(1) Abortion, (2) and (3) eclampsia
Case C —(1) and (2) Abortion, (3) eclampsia
Case D —(1) to (7) Normal, (8) *to* (10) abortion, (11) eclampsia

In other words, the morbid process resident in the patient and damaging the successive pregnancies might be primary or acquired In many of the damaged pregnancies of the sequence there was no toxæmia Thus

Case E —(1) and (2) Normal, (3) premature stillbirth with no toxæmia, (4) eclampsia

Case F —(1) Normal, (2) premature, (3) normal, (4) stillbirth with no toxæmia, (5) premature with no toxæmia, (6) eclampsia

Accidental Hæmorrhage

It had long been known, continued Dr Young, that the same absence of toxæmia occurred in many cases of accidental hæmorrhage Toxæmia was present in only about 40 to 50 per cent, and even in patients who died as the result of the hæmorrhage, there might be no evidence of toxic changes in the liver, kidney, or other organs The toxæmia was an accident, and when present was apt to be intense in cases of concealed hæmorrhage—i e, in cases where the damaged placenta was retained within the uterus Dr Young showed that the same abortion, premature birth, toxæmia sequence occurred in this condition Thus -

Case G —(1) Normal, (2) abortion, (3) accidental hæmorrhage

Case H —(1) Normal, (2) accidental hæmorrhage with toxæmia, (3) abortion with no toxæmia, (4) accidental hæmorrhage with no toxæmia

The sequence, said Dr Young, was found in 18 out of 55 cases (32 per cent) He believed that the data indicated that the causes of eclampsia and the related toxæmia of pregnancy were to be found amongst the causes of abortion and premature birth—namely, those which operated by means of placental damage Toxæmia was an accident occurring only in those cases in which, after the placenta was damaged, the abortion or premature birth did not take place quickly enough He stated, further, that the recognition of the high incidence of recurrence in true eclamptic toxæmia and, in eclamptic cases, of the considerable tendency to recurring abortion, premature labour, &c, made necessary a revision of our views regarding so-called nephritic toxæmia It was generally believed that there were two groups of late pregnancy toxæmia, the eclamptic or non-recurrent, and the nephritic or recurrent This distinction was now untenable This statement did not, of course, apply to those comparatively few cases of renal disease clearly acquired before pregnancy—for instance, from scarlet fever—which were sharply marked off from the specific toxæmia in which nephritis was secondary Dr Young believed there was now much evidence for the view that the late pregnancy toxæmias, whether eclamptic or nephritic, had a similar origin in the diseased placenta, and that kidney damage in such cases was secondary and was often aggravated by successive toxic pregnancies This was supported by his own investigations and by those of others, which indicated that chronic nephritis might succeed even one eclamptic attack

Dr DOUGLAS MILLER read a communication on

Occipito-Posterior Position of the Vertex,

based on an analysis of 750 cases of occipito-posterior presentation, mostly seen at the Edinburgh Royal Maternity Hospital In all cases, except for the abnormal position, labour was uncomplicated by contracted pelvis or other major abnormalities, and the series comprised only those cases in which diagnosis of posterior position was made or confirmed during labour They were classified into the following four groups —

Group 1 —*Spontaneous rotation* of the occiput to the front occurred in 474—i e, in rather more than 60 per cent. This figure probably gives too low an estimate of frequency of anterior rotation, as the review necessarily omitted cases admitted late in labour, in which forward rotation of a primarily posterior position may have already taken place Where anterior rotation occurred, the average duration of labour was greater than in primary anterior positions by 2¼ hours in primigravidæ and by 1¾ in multiparæ In 51 cases forceps delivery was ultimately necessary because of fœtal distress or rigidity of the pelvic floor

Group 2 —*Spontaneous delivery with face to pubes* took place in 88 cases, in nine of which the infant was the second of twins In most of the remainder the children were small or the vaginal orifice abnormally lax

Group 3 —In 48 cases (6 4 per cent) the head was seriously delayed at the inlet of the pelvis In approximately two-thirds of these manual rotation of the head was carried out This manœuvre was, as a rule, followed by forceps extraction, although in many cases no further assistance was required Rotation of the head was effected by means of forceps in five cases Internal version was performed in 12 cases and gave much less satisfactory results In the majority of cases, however, this operation was not one of election, but was done as a last resort after labour had become seriously prolonged Craniotomy was performed in two cases in which fœtal death had already occurred

Group 4 —In 140 cases the head was arrested at a low level in the pelvis with the occiput posterior Manual rotation followed by spontaneous or forceps delivery was the treatment adopted in rather more than half of these cases In about 25 per cent rotation was effected by forceps Extraction of the child face to pubes was employed in a small number of cases of severe impaction, whilst craniotomy was performed in eight cases in which delivery of a living child was considered impossible

Discussing these different methods of dealing with the persistent occipito-posterior presentation, Dr Miller said that the results were found to be definitely unfavourable to forceps rotation. In emphasising the importance of diagnosis, he pointed out that in most cases it was possible to decide at an early stage in labour whether forward rotation was likely to occur or not, by careful abdominal and vaginal examination, or by noting such signs as were shown in the following table —

—	*No of cases in which noted*	*(Termination malrotation or non-rotation)*	*Spontaneous forward rotation*
Early rupture of membranes	197	145 (74 %)	52 (26 %)
Delayed engagement of head	139	107 (77 %)	32 (23 %)
Fœtal heart heard both in flank and in opposite anterior lower quadrant	103	78 (76 %)	25 (24 %)
Normal engagement and rupture of membranes at or near full dilatation of os	332	33 (10 %)	299 (90 %)

Dystocia was greatest and morbidity highest, said Dr Miller in the persistent posterior case in which assistance had been delayed until serious impaction had occurred, and he suggested that in the restricted group of cases in which clear indications of faulty flexion were present, rotation of the head and body of the child might with advantage be carried out at or near the commencement of the second stage of labour This proposal of early interference did not run counter to the conservative policy so generally applicable in the management of labour, for against a manœuvre which was comparatively simple and safe when done early, there had to be placed the high probability of difficult intervention after the mother had become exhausted by hours of suffering and fatigue, and fœtal life had sunk to a low ebb.

MANCHESTER MEDICAL SOCIETY AND PATHOLOGICAL SOCIETY

A JOINT meeting of the Manchester Medical Society and the Pathological Society of Manchester was held on Jan 12th, Dr A. A. MUMFORD in the chair

The Dick Test.

Dr D S SUTHERLAND opened a discussion on the Clinical Value of the Dick Test and the Preparation and Use of Scarlet Fever Toxin and Antitoxin He said that in 30 cases of definite scarlet fever during the first three days of the rash distinguishable blanching was obtained in dilutions of immune serum up to 1/5000 in from 12 to 24 hours In two doubtful cases of scarlet fever, where no blanching was obtained, the subsequent clinical symptoms confirmed the diagnosis as being due to a cause other than scarlet fever, and in three cases where the rash was definitely due to another cause no blanching was observed Among the members of the nursing staff at Monsall Hospital, 15 3 per cent were found by the Dick test to be susceptible to scarlet fever, and were immunised before being detailed for duty in scarlet fever wards, 23 per cent were found susceptible to diphtheria and were protected by immunisation During the last six months no cases of scarlet fever or diphtheria had occurred among nurses thus protected Diphtheria patients to the number of 354 were Dick-tested on admission to hospital, of whom 55 9 per cent were found susceptible to scarlet fever the percentage of susceptibles was found highest—83·3 per cent—at the age-period of 1 to 2 years The number of scarlet fever patients Schick-tested on admission for susceptibility to diphtheria was 589, of whom 56 5 per cent were found susceptible The percentage of susceptibles was highest at 5 years of age reaching 75 per cent The standard of immunity of diphtheria patients to scarlet fever was lower than that of patients suffering from scarlet fever to diphtheria, up to the age of 5 years After 7 years the reverse applied, and in both diseases the standard of immunity was much lower than among an average healthy community.

A table of Dick tests with a standard dilution of 1/1000 classified according to day of disease, on 566 definite cases of scarlet fever on admission to hospital, showed, in a survey of 463 patients during the first five days of illness, that 83 6 per cent were Dick positive. Of those giving negative reactions during this period, 36 had intensely marked rashes, which may have masked the reaction On the second day of rash 86 per cent were found to be positive reactors, and, by including possible masked reactions where the rash was intensely marked, this percentage of positive reactors could be raised to 95 5 It was suggested that the remaining 4 5 per cent of negative reactors might be accounted for by rapid development of immunity during the incubation and invasive period of the disease These figures closely approximate to those of Zingher, of New York Dick tests on 150 early cases of scarlet fever, at successive short intervals, demonstrated the establishment of immunity in 90 per cent of cases at from nine to fifteen days, the remaining 10 per cent becoming negative in from two to three weeks In a scrutiny of nearly 800 cases of scarlet fever during the last five months, in about 20 cases where the diagnosis of scarlet fever was undoubted, and where susceptibility, as indicated by the Dick test, had persisted beyond four weeks, a reinfection or relapse had in nearly every case occurred, at periods varying from four to six weeks, followed in a few days by a Dick-negative reaction It was noted that these cases were marked in the primary attack by a very slight degree, or absence, of pyrexia, the other symptoms, including subsequent desquamation, being characteristic It was recommended that such cases be actively immunised, to establish immunity by the twenty-first day. Three hundred skin doses of toxin were sufficient to change a Dick-positive to a Dick-negative reaction, and this dose was unattended by any constitutional disturbance. A Dick test on all cases at the onset of illness and on the twenty-first day was recommended. The use of the test was summarised as follows —

1 A very strongly positive reaction early in the disease and again late in convalescence speaks against the diagnosis of scarlet fever

2 A definite negative reaction during the first two days of rash should put one on guard that he is not dealing with a case of scarlet fever

3 The Dick test should be applied to the diagnosis of sore-throat and pyrexia associated with definite cases of scarlet fever in the same family

4 The test is useful in determining the establishment of active immunisation and in estimating the potency of antitoxic serum

5 In the diagnosis of scarlet fever, the test should be interpreted in relation to the susceptibility of healthy individuals at the age period of the patient.

6 The test is specially useful on the occurrence of scarlet fever in a diphtheria ward The Dick test made, on admission, will indicate without delay the susceptible patients, and protection can be immediately rendered by a prophylactic dose of immune serum. During the last year, on two occasions, in a diphtheria ward of 50 beds, an outbreak of scarlet fever had been followed by no secondary cases when such a course was adopted

7 It is recommended that in surgical wards where exposure to scarlet fever is suspected, patients who have not previously suffered from scarlet fever should be Dick-tested before operation and prophylactic serum administered where the reaction is positive

8 The value of immunisation in case of extensive burns is indicated, even in the absence of exposure to the infection of scarlet fever.

Dr R A. O'BRIEN called attention to the importance of the protection of nursing staffs in fever hospitals and the 10 per cent incidence of scarlet fever in some hospitals At Monsall both diphtheria and scarlet fever were in process of disappearing since Schick and Dick testing and immunisation had been introduced Amongst the nurses, apparently 40 out of 45 with a previous history of scarlet fever gave a negative response to the Dick test, and 18 out of 19 nurses with a previous history of diphtheria gave a negative response to the Schick test The

Dick test during the first three days of the attack of scarlet fever was positive in the Monsall series in 217 out of 251. It was noted, however, that 28 of the negative reactors had very vivid rashes Presumably in such cases the capillaries are dilated to their fullest extent by the circulating toxin, and no local introduction of the Dick test amount of toxin can increase this dilation In other words, these patients present a "universal Dick-positive response." If one deducts these 28 cases, the test was positive in 217 out of 223 patients—i e , 97 per cent The figures for the test applied up to the fifth day of the disease are 388 positive and 27 negative ("vivid rashes" being eliminated)—i e , 93 per cent , whereas from the sixth day onwards the percentage drops to about 60 All such collections of figures show that measurable immunity develops rapidly in the average patient at or about the fifth day This agrees with clinical experience The Schultz-Charlton test was positive in all of 35 successive cases admitted and tested during the first three days of the rash The test is obviously of considerable use in practice, and it is now in routine use in several hospitals in the examination of all "doubtful" cases of scarlet fever Blanching in this series has been got with serum diluted to 1/4000 Evidently a reasonably good serum for clinical use will in this dilution produce blanching in the great majority of patients tested during the first two days of the rash The clinician has thus in his hands a method of rough measurement of the clinical value of any serum he proposes to use for treatment Comparison of the Washington Dick toxin with that in use in many places in this country suggests that in corresponding dilutions the two toxins are of nearly equal potency The comparison will be resumed later when a further sample of the American toxin is available Apparently amongst some 600 to 800 patients convalescent from scarlet fever at Monsall, about 20 gave a positive response to the Dick test at or after the third week of convalescence The Monsall plan was to give a small injection of toxin to patients found to be Dick negative on the twenty-first day and the resultant negative Dick reaction a week later was of great interest to the immunologist and probably of equal interest to the administrator It might prove to be a better way than giving passive immunity to such patients with antitoxin "Second attacks" of scarlet fever during the stay in hospital cause a considerable amount of trouble to all concerned

Dr O'Brien showed figures illustrating the results got by the Parish-Okell rabbit test,[1] which he said promises to be of considerable use in the titration of antitoxin and possibly, conversely, of identification of pathological hæmolytic streptococci

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[1] THE LANCET, Jan 8th, 1927, p 71

ROYAL MEDICAL BENEVOLENT FUND —At the last meeting of the Committee 44 cases were considered and £769 13*s* 6*d* voted to 40 applicants The following is a summary of some of the cases relieved —

Widow, aged 36, of M B who died suddenly in November last Left with one child aged 2 entirely unprovided for She has recently had a major operation and will not be fit for work for six months Late husband had to help to support his mother and sister which prevented his leaving adequate provision for his wife and child An emergency grant of £10 sent and a further sum of £26 in four instalments was voted

L R F P & S Glasg , aged 84 Four children Wife, aged 80, is paralysed and helpless Only income £12 from investments old age pension £52, and allowance of £90 per annum from second son who also pays for the maintenance of his elder brother who is in a mental hospital Eldest daughter, aged 51, is at home and looks after her parents while the youngest earns 25*s* a week in a warehouse Rent and rates amount to £36 per annum Emergency grant of £10 made and a further sum of £40 in 12 instalments voted

Daughter, aged 52, of M D who practised in the North and died 1874 She lost money on a boarding-house which had to be given up at the end of nine months Teaches music but from lack of pupils asks the Fund for assistance She is lame Total received from teaching in the last 12 months was £88, and £11 from the rent of a house in Scotland Rent and gas 12*s* 6*d* a week Voted £18 in 12 instalments

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W 1

Reviews and Notices of Books.

JACOBI'S ATLAS OF DERMACHROMES

Fourth edition With a new and original text by HENRY MACCORMAC, C B E , M D London William Heinemann, Ltd 1926 With 322 coloured illustrations and two half-tone figures Two vols £5 5*s*

THE first English edition of this well-known German Atlas appeared in 1903, with an English adaptation of the text by the late Dr J. J Pringle. A second edition, containing 159 coloured and 13 black-and-white plates, followed in 1906, and at the urgent request of Prof Jacobi's colleagues was made more complete by a supplement which contained 76 additional coloured plates A German edition, published by Jacobi in 1913, and dedicated to his former teacher the late Prof Neisser, contains 266 coloured and two half tone plates, while the fourth English edition now under review retains all the original plates, and has increased their number to 322 It has also undergone a revision in respect of grouping and general arrangement, and is now a perfect work of its kind The colour standards and the method of printing remain unaltered, it is difficult to see how there could be a better reproduction of flesh tints until photography in natural colour from the living subject is simplified, and made practicable in the clinic

The value of such a collection of plates is comparable to that of a series of specimens in a museum of pathology The dermatologist can use it for teaching purposes or for comparing his own cases with those of colleagues—distant in space or time The practitioner will prize it as an aid to memory, and the fortunate student who has access to such an atlas is enabled to study details which a hurried examination in the out-patient department does not often permit

This is not to suggest that this or any atlas can take the place of careful and repeated study of the actual lesion on the living subject, but that it is a most admirable adjunct thereto A new and entirely original contribution to this edition is the explanatory text by Dr Henry MacCormac This is more detailed than is usual in a work of the kind, and almost reaches the dignity of a text-book of dermatology The descriptions are concise and very clear, all theoretical discussion being avoided The sections on diagnosis and treatment (particularly that of syphilis) are equally satisfying, and if the reader can master and memorise all that is here written, he will have obtained sufficient knowledge to cope with most of the skin cases likely to engage his attention in private practice By the new method of grouping employed, the differences between pemphigus and dermatitis herpetiformis, small-pox and varicella, the various drug eruptions, and other rashes which superficially resemble each other are readily appreciated, and may save the practitioner from potential errors of diagnosis A few gaps in the illustrations might profitably be filled in subsequent reprints or editions There are no pictures, for instance, of the sarcoids, although they are dealt with in the text, while illustrations of acute eczema, furunculosis, and carbuncle might also find a place An alphabetical list of plates accompanies each volume and retains the old and partly discarded classical names used at the time of Hebra and Kaposi The obvious criticism that arises is stifled by the addition of an excellent English index to be found at the end of the second volume. The arrangement and nomenclature are thus rendered comprehensible to any reader, and the work gains an international character.

The book as a whole is a credit to British dermatology, on which both the annotator and the publishers deserve congratulations

DISEASES OF THE SKIN

Fourth edition By JAMES H SEQUEIRA, M D , F R C P Lond , F.R C S Eng , Physician to the Skin Department and Lecturer on Dermatology at the London Hospital London . J. and A Churchill 1927 Pp 644 £2 2s

Dr Sequeira and his publishers are much to be congratulated on this, the latest edition of one of the best known text-books on dermatology Without the least increase in bulk the work has been completely modernised, and contains in readable form all that can be regarded as proven in an expanding and increasingly complex branch of medicine The number and excellence of the illustrations, all of them from typical examples of skin diseases—and many of them in their natural colours—will appeal to the novice, and will not be disdained by the more experienced practitioner The text has undergone no radical alteration, and maintains the concise and lucid style of previous editions In the table of contents there is an improvement in the printing of the various headings, and an increase in their number from 26 to 27, brought about by the introduction of a chapter on disease caused by filterable and other viruses

Dr. Sequeira's clinical experience, probably unrivalled in this country, enables him to give authoritative statistical information based on his own figures The section on the sarcoids, our knowledge of which has been considerably augmented since the last edition was published, contains a good summary and three excellent illustrations from one of the most interesting types of the disease Similar improvements are to be noted in the chapters on ringworm, the erythrodermias and lupus erythematosus The chapter on syphilis may be regarded as the latest word on this vast subject Dr Paul Fildes's contribution on the Wassermann reaction has been extended to include a short account of the "Sigma" test On the subject of light therapy, which Dr Sequeira was one of the first to sponsor in this country, he is regrettably brief His readers would have welcomed from his pen a more detailed exposition of general technique and dermatological indications Apart from this lost opportunity to steady the claims of some of our more enthusiastic radiotherapists, it is difficult to detect a weak spot in this absorbing and conscientious compilation

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HYDROGEN ION CONCENTRATION

Hydrogen Ion Concentration Its Significance in the Biological Sciences and Methods for its Determinations By LEONOR MICHAELIS, M D , Professor in the University of Berlin, Resident Lecturer in Research Medicine in the Johns Hopkins University Vol. - I Principles of the Theory Authorised translation from the second revised and enlarged German edition, by WILLIAM A PERLZWEIG, M A., Ph D , Associate in Medicine and Chemist to the Medical Clinic in the Johns Hopkins University and Hospital London Baillière, Tindall and Cox 1926 Pp 299 22s 6d

Les Ions d'Hydrogène By W KOPACZEWSKI Paris Gauthier-Villars et Cie 1926 Pp 322 Fr 70

Hydrogen Ion Concentration of the Blood in Health and Disease By J HAROLD AUSTIN, Professor of Research Medicine, University of Pennsylvania; and GLENN E CULLEN, Professor of Biochemistry, Vanderbilt University Medical School London Baillière, Tindall and Cox 1926 Pp 75 9s

THE question of hydrogen-ion concentration and its determination has invaded the province of practically every biological and medical science Starting at first with the researches of Sorensen, it soon became of paramount importance in physical chemistry, was then applied to the study of enzymes, and its subsequent invasion of the field of colloid chemistry made an understanding of the new principle fundamental to the study of biological science

The first monograph to appear on this subject was Prof Michaelis's "Wasserstoff-Ionen-Konzentration" This was published in Berlin in 1914 as a single volume, and contained a brief account of the biological application of the subject, together with some practical methods for the determination of hydrogen-ion concentration and for many years this formed the only available source of information The fact that the work was written in German precluded many workers from taking advantage of the information it contained, and many people who were unacquainted with the language studied German specially to enable them to read the book Every statement in the volume was correct, and every experiment when repeated turned out exactly as described. The second German edition of this work was published some years ago, when, though the literature in the subject had already grown to considerable proportions, it was most welcome, and the English translation of this edition now published will be a great help to workers in this field, for in a subject itself difficult to understand the handicap of attempting to grasp it in a foreign language is considerable The English version is more than a mere translation, too, since it has the full sanction of Prof Michaelis, who has himself added to the text, bringing it quite up to date

The volume is divided into two parts, the first of which deals with the chemical equilibrium of the ions, and the second with the ions, particularly the hydrogen ions, as sources of electric potential differences The first chapter explains the law of mass action and its application to the dissociation of electrolytes and of water The methods of calculating the concentration of hydrogen ions from the concentration of acids and bases in solution and for determining the iso-electric point are explained The second chapter deals with the determination of titrable acidity, pH value and buffer value, while the third chapter, on the dissociation of strong electrolytes, explains the theory of activity and its significance for the pH of buffers The next chapter deals with some complications in the laws of dissociation which arise in connexion with undissociated salt molecules, and in the fifth chapter what is known concerning dissociation in non-aqueous solutions is described

Part 2, Chapter VI, deals with the electrode potentials Nernst's theory of metal electrode potentials is expounded and applied to concentration chains, and especially to gas chains as being the most important for physiological work The biological significance of diffusion potentials, potentials at phase boundaries, and membrane potentials is dealt with in the following chapters, and the volume concludes with a section on adsorption potentials and electrokinetic phenomena Adsorption is explained and the position of the H- and OH-ions in adsorption is demonstrated by using as the adsorbent charcoal, when all cations compete with the H-ions and all anions with the OH-ions The theories of electro-endosmosis and electrophoresis are explained, and their relation to the ionic theory described Diaphragms are also dealt with, and the application of adsorption potentials to physiology and colloidal chemistry is described

As will be seen from the above summary, the volume is concerned mainly with the biological considerations of the subject, but the matter set out is of such importance that no person working in a biochemical laboratory can afford to ignore it Subsequent volumes, particularly those dealing with the technique for the determination of hydrogen ions and its application to various biochemical and medical problems, will be eagerly awaited

Prof Kopaczewski's work covers the same ground with less theory and mathematics. The volume is divided into three parts, the first of which deals with some theoretical considerations, such as the laws of electrical dissociation The section dealing with the measurement of hydrogen-ion concentration contains an exhaustive account of technique, electrical and colorimetric, some even of the very old methods being included Very full descriptions and illustrations of apparatus are given, including that made by the Cambridge Instrument Co In the third part of the book the author discusses the applications of hydrogen-ion concentration in analytical, industrial, biological, and physiological chemistry Its application in biology and medicine is also considered, and although this section has necessarily been condensed, it contains a good account of hydrogen-ion concentration in normal fluids and tissues of the body, and also in certain pathological conditions A valuable addition is the list of buffer solutions, which list includes all the most recent and well-known ones Prof Kopaczewski's book is a complete and reliable treatise on a complicated subject

Prof Austin's little book is concerned with various factors which combine to make the pH constant. The first chapter deals with the general considerations, nomenclature, and the methods whereby the pH of the blood is regulated The last section of the chapter is disappointing, since there is no mention of the acid base equilibrium in relation to gastric and pancreatic secretion, and the renal mechanisms seem to have been overlooked The second chapter is concerned with the normal values of serum, blood, and the body fluids in general. This chapter consists only of three pages, of which one is occupied by a graph ; the normal mechanisms for the regulation of pH might well have been treated more fully, in order to prepare the reader to cope with the third chapter, which deals with abnormal acid base balance Here the introductions of acids and bases into the body are discussed, and also those conditions where excessive losses of acid and base from the body occur There follows a detailed account of the pH of the blood in various diseases Chapter IV. is concerned with the determination of hydrogen-ion concentration by various methods This chapter is hardly full enough to be of practical value, and yet is too involved to serve as a general description of the methods for the non-technical reader.

Throughout the book rather too much is taken for granted ; more details are needed where only mathematical formulæ are given and a fuller explanation of the normal mechanisms would certainly be appreciated But the book remains a successful effort to cope with an extremely difficult task and should increase the interest among clinicians in the basic principles on which modern biochemistry is founded

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FUNDAMENTALS OF THE ART OF SURGERY

By J. H. WATSON, M B , B S Lond , F R C S Eng , Surgeon to the Victoria Hospital, Burnley London William Heinemann, Ltd. 1926 Pp 349 17*s* 6*d*

Mr Watson has written a book which may be recommended to all who are about to assume the responsibilities of an active surgical career The table of contents would lead us to believe at first that another of the usual text-books of minor surgical matters for house surgeons had been offered to us. This is not so The ground covered is much more restricted than in most books of that type Indeed the volume does not make a strong appeal to those who are looking for a text-book on the details of the technique of minor surgery. The author has a mission of far higher value in his insistence upon the essentials—those ultimate qualities upon which the work of the true surgical artist is based Operating is not surgery, neither is surgery all operating So we find chapters upon the art of surgery, surgical efficiency, surgical judgment, case-taking, and prognosis—chapters which are full of wisdom This is the best part of the book, though elsewhere will be found useful hints on operative technique, after-treatment, the management of shock and hæmorrhage, and other such matters

SURGERY OF THE STOMACH

Die Chirurgie Edited by Prof Dr M. KIRSCHNER (Konigsberg) and Prof Dr O NORDMANN (Berlin) Part X *Die Chirurgie des Magens und des Duodenums* Berlin: Urban and Schwarzenberg 1926 Pp 329

THE high level maintained by previous volumes in this system of surgery is again manifest here Three authors share in the production of this part of the work—namely, Prof N Guleke, Prof H Nieden, and Prof H Schmidt More than 100 pages are occupied by general considerations such as anatomy, physiology, and methods of investigation of the stomach Descriptions follow of the ordinary operations which are employed in gastric surgery, including such little used methods as that of Goepel for carrying out the Billroth I procedure The operation of duodeno-jejunostomy, to which so much prominence has been given by Pierre Duval and D P D Wilkie, receives bare mention An extremely interesting section is that by Prof Schmidt, who has collected all information available on the subject of the alteration of the mechanics of the stomach after resection or anastomotic operations Such knowledge is not so widespread amongst surgeons as its importance warrants The special part of which the remainder of the book is composed gives systematic and complete descriptions of the several diseases It is possible to find full information on any one of them, including the rarer affections such as syphilis, actinomycosis, or volvulus of the stomach or injury to the duodenum, whilst at the end of each chapter is a complete bibliography Sound and unbiased judgment is pronounced upon debatable subjects For instance, under the heading of gastroptosis is given an account of the well-known clinical phenomena of the disease with a review of surgical measures which have been devised for its relief. Though good results from suspension of the stomach were claimed at one time by the author, he does not hesitate to state how unsatisfactory has been the condition of the patients some years later He has abandoned such procedures, but claims to have obtained success in a few cases after performing a Billroth II procedure The same serious consideration is given to the discussion of ulcers of the stomach and duodenum All the available knowledge on the subject has been drawn upon, so that these chapters form a balanced review of the surgery of this disease The reader is the gainer in that the facts are set forth for him to form his own judgment, while definite pronouncements are reserved for matters generally accepted as beyond dispute The section on cancer of the stomach is one of the best we have seen The book is illustrated with some pleasing coloured plates

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JOURNALS

JOURNAL OF PATHOLOGY AND BACTERIOLOGY Vol XXX. No 1. Pp 1–184 January, 1927 —The Diurnal Tides of the Leucocytes of Man, by A F Bernard Shaw (Newcastle) An account of this paper appears in our editorial columns (p 301) —The Action of Cyanides on Bacteria by F M Burnet (London) Bacteria may be divided into two groups according to their growth—e g , streptococci, pneumococci—or failure to grow—e g , staphylococci, diphtheria, plague, typhoid, *coli*, &c —on media containing cyanide The difference is associated with different types of respiration —Thrombo-angeitis Obliterans, by J Marnoch and Edith MacRae (Aberdeen) A good description of a case of this rare disease, with an account of the anatomy and histology of the leg which was amputated —Infection of Rats by Gaertner's Bacillus, by C Price-Jones (London) If a large number of rats are fed with Gaertner's bacillus a few die and the rest show signs of illness Forty-eight hours after feeding the bacillus can be found in the spleen and liver of nearly all the animals , after about ten days it begins to disappear so that at the end of two months it can be recovered from only 10 per cent. of rats In a minority it survives at least five months. These surviving animals are to all appearances quite healthy, but if they are put to live with fresh uninfected rats they can initiate an epidemic.—The Supposed Presence of a Pressor Substance in the Blood of Patients with High Blood Pressure. by F. R Curtis, A. A. Moncrieff. and S. Wright (London). No evidence of such a substance was obtained.—Neoplasm in a Porose Crocodile. by H. H. Scott and J. Beattie (London) A sarcoma originating probably in the liver with growths in the heart and brain, found in a crocodile from the Malay States at the Zoo —Chronic or Subacute Herpetic Meningo-encephalitis in the Rabbit, with Some Observations on Calcification, by C. Da Fano and J. R Perdrau (London). A chronic form of herpetic encephalitis can be produced in rabbits by using partially immunised animals or an attenuated virus The histological changes are fully described and well-illustrated, and considerable attention is given to the apparent calcification which is found in nerve-cells and other structures The disease bears a considerable resemblance to encephalitis lethargica in man.—Complement Fixation with Bilharzia by N. Hamilton Fairley (Bombay) Alcoholic extracts of bilharzia cercariæ in its molluscan hosts act specifically in complement-fixation tests. As far as can be made out they are free from protein. They are also effective as antigens when injected into goats. Infected goats give a much quicker and larger antibody response than normal animals so that the method may be used in diagnosis —On the Relation of the Alcohol-soluble Constituents of Bacteria to their Spontaneous Agglutination, by P. Bruce White (London). The ‘rough” variants of the food-poisoning bacteria generally agglutinate spontaneously in salt solution of ordinary strength After extraction with hot alcohol, chloroform, or ether, emulsions are stable, but their sensitiveness to salt can be restored by impregnating them with the alcoholic extract. The alcohol-soluble material itself is soluble in distilled water, but is easily precipitated by the addition of salt.—The Rapid Death of the Meningococcus and Gonococcus in Oxygenated Cultures. the Part Played by the Development of an Unduly Alkaline Reaction, by H V. Phelon. Georgina M. Duthie. and J. W. McLeod (Leeds) The production of considerable quantities of acid in bacterial cultures is well known ; an inhibitory or fatal amount of alkali may also appear under certain conditions, due in the main to ammonia and alkaline carbonates arising from the oxidation of sodium salts of fatty acids — Observations on the Sonne Dysentery Bacillus and *Bacillus coli anærogenes,* by D Nabarro (London). The Sonne bacillus has been isolated under other names for some years in this country in children's diarrhœa and other conditions —An Epidemic of Fowl Typhoid, by S Miller and F. B Smith (Harrogate) An account of a widespread epidemic of this rather uncommon disease in Upper Nidderdale, in which *Bacillus sanguinarium* was isolated —Some Observations on Streptococci Occurring in Children, by Vida J. Perry (London). *Pyogenes, mitis. fæcalis, salivarius.* and *infrequens* were the chief varieties met with in a mixed collection of diseases —Prophylaxis of Measles with Convalescent Serum, by S Miller and F. B Smith (Harrogate). Gives an account of the successful application on a small scale of this method.—Leptothricosis. by I. Mackenzie (Glasgow) Description of the pleomorphic leptothrix organism isolated from the cerebro-spinal fluid of ten cases of this obscure disease which is becoming susceptible to diagnosis —Observations on the Relative Value of the Wassermann and Kahn reactions in cases of Congenital Syphilis by D McClean (London). A study of 767 tests supports the delicacy and accuracy of the Kahn reaction.—Obituary notices of John George Adami (with portrait and bibliography) and William Edward Marshall —Proceedings of the Pathological Society of Great Britain and Ireland.

JOURNAL OF PHYSIOLOGY. Vol LXII, No 1. Cambridge University Press. 12*s* 6*d*.—The Arterial Pressure in the Eye. by W. S. Duke-Elder. The author measured the pressure in the branches of the retinal artery of anæsthetised cats and the pressure in the ophthalmic artery. No method has yet been devised to measure the capillary pressure in the eye. but it is probable that in the arterial capillaries it rises at least 30 mm. Hg higher than the pressure in the chamber of the eye—i e , to about 50 or 55 mm. The vascular pressures although by themselves they prove nothing, make it possible that the aqueous humour is formed purely by a process of dialysation. —Insulin and the Production of Acetone Bodies by the Perfused Liver, by H S Raper and E. C. Smith. The isolated dog's liver when perfused with defibrinated blood has been shown to produce small amounts of acetone bodies, but much larger amounts if ammonium or sodium butyrate is added to the blood. The authors' experiments were designed to gain an insight into the anti-ketogenic action of insulin. which in severe diabetes stops the formation of acetone bodies. By experiments described it was found that a cat's liver in situ when perfused with its own blood produces acetone bodies in quantities proportional to the fat content of the liver. and inversely proportional to its glycogen content. No evidence was obtained that insulin influences this action of the liver. The increased production of acetone bodies following addition of sodium butyrate to the blood is unaffected by addition of insulin About 80 per cent of the theoretical acetone is obtained from sodium butyrate added to blood perfusing the liver. There was no evidence that in the isolated perfused liver insulin causes a deposition of glycogen even when the concentration of blood-sugar is several times as great as normal. or that it causes increased glycogenolysis The perfused hind limbs of the cat remove glucose from the blood much more rapidly when it contains insulin than when it does not. but this effect is inhibited when pig's blood is used for the perfusion. A method is described for the estimation of butyric acid in blood.—The Impulses Produced by Sensory Nerve-Endings. Part 4, Impulses from Pain Receptors by E. D. Adrian The author analyses the impulses set up in cutaneous nerves by painful stimuli and compares the pain discharge with that of other receptors. The older view that pain resulted from excessive stimulation of any cutaneous receptor has been largely abandoned in favour of the idea of special pain receptors and conductors. Impulses produced in cutaneous nerves by painful stimuli to the skin have been recorded in the cat and in the frog. By the use of a sharply localised stimulus (the prick of a fine needle) the number of fibres in action can be restricted so that individual impulses are recorded without interference. With a constant stimulus (the needle pressing with a constant weight on the skin) the frequency of the discharge declines rapidly from its initial maximum value. With an increasing stimulus (the needle being slowly driven through the skin) the frequency rises gradually and declines again when the movement is *stopped*. The intensity of the pain sensation in man follows much the same course. The impulses produced by the pain receptors have the same time-relations as those produced by pressure receptors (cat) and muscle receptors (frog). The frequency of discharge in each fibre seems to cover the same range and there is nothing characteristic in the grouping of the impulses. The only distinction that can be drawn between the discharge of the pain receptor and that of other receptors lies in the very brief discharge with weak stimuli. It is suggested that these brief discharges may not be adequate to evoke the pain response but may serve instead for momentary sensations of contact. the development of the pain response depending on the summation of impulses in the central nervous system. Since the range of frequency of each fibre is much the same for all the receptors investigated it is presumably determined by some common factor. such as the properties of the naked axis cylinder, and not by the particular structure of the end-organ —On the Cellular Mechanism of Bile Secretion and its Relation to the Golgi Apparatus of the Liver Cell, by W Cramer and R J Ludford In the cells of all secreting glands except the liver the specific products of secretion are passed out of the cell in one direction only But the cells of the liver pass glycogen into the blood stream and at the same time take up bile-pigments and bile-salts from the blood Each cell thus subserves an internal and external secretion The authors' observations lead them to conclude that in the liver cells the bile constituents appear as a secretion within the Golgi apparatus, which in the process of bile secretion first enlarges and then fragments The fragments are dispersed through the cytoplasm and reach the periphery, where they pass their contents into the intercellular bile capillaries —The Sensitising Action of Alkalies, by A Hemingway. That the tone and activity of tissues containing plain muscle is largely dependent on the reaction of the fluids bathing them has long been known, and there is evidence that certain drugs are more effective when used in an alkaline medium The author found an increasing reaction of mammalian blood-vessels, uterus, and small intestine to successive changes in pH towards the alkaline side An exaggerated response to adrenalin accompanies the reaction to alkalies —Reversal of the Action of Adrenalin, by B A McSwiney and G L Brown The type of response produced by adrenalin is related to the condition of tonus of the gastric musculature of the rabbit, an inhibitory response being obtained in the tonic or contracted muscle, an augmentor response in the atonic or relaxed muscle —The Application of the Ethyl Iodide Method to the Determination of the Circulation-Rate in Women, by Winifred C Cullis, Olive Rendel, and Ellen Dahl The stroke-index gives an average output for Women of 1 7 c cm per kg of body-weight from the right side of the heart during rest —The other papers are the Effect of CO_2 on the Absorption of Alcohol and the Influence of Alcohol on the Diffusion of CO_2 in the Small Intestine, by N Edkins and M M Murray —The Differential Paralysis of Cardiac Nerve-Endings and Muscle, by W R Witanowski —The Buffering Power of the Blood of *Maia* Squinado, by Phyllis M Tookey Kerridge —The Recovery Heat Production in Tortoise Muscle, by W Hartree and G Liljestrand —The "Interference" of two Flexion-Reflexes, an Examination of Vészi's Experiment, by T. Graham Brown —The Effect on the Chronaxie of Thyreo-parathyroidectomy, by N Douglas Buchanan and H S D Garven

ARCHIVOS DE LA CLINICA MEDICA Del Prof E Prado Tagle, Santiago, Chile 1926 —This volume is the first of a series of clinical reports which Prof Tagle hopes to issue to illustrate the work done in his clinic For six years he has been engaged in bringing the clinic up to date and making it worthy of the principal hospital in the capital of Chile It now has a well-equipped laboratory besides a policlinic which supplies the wards It is interesting to note that the whole has been organised on a contributory basis, both in- and out-patients always giving something unless quite destitute, the proceeds are shared between the staff and hospital, and the system is said to work well The clinical articles include one by Prof Tagle on endocarditis lenta, an exhaustive examination of German views on the nephropathies by Dr R Vicuna Herboso, and about ten other contributions by members of the staff, all illustrated from the clinical work of the hospital The volume is well printed and produced, and promises to be the prelude to an interesting series of records

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MENTAL AFTER-CARE ASSOCIATION —The Prince of Wales has consented to preside at a meeting of the Association to be held at the Mansion House on Thursday, March 31st, at 3 P M

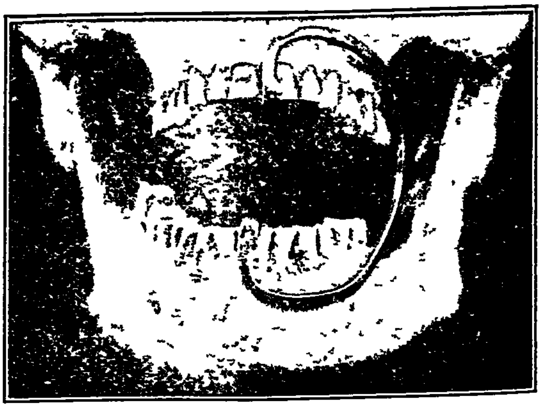
New Inventions.

A NEW MOUTH PROP

OPERATIONS upon the teeth, mouth, and throat under an anæsthetic require the use of some kind of prop to hold the mouth open I do not know of any device for holding the mouth open which is entirely satisfactory Those in general use have many serious faults They are liable to slip, they get into the way of instruments, they obstruct the view and, in the case of extraction of teeth, necessitate the use of the Mason's gag if teeth on both sides of the mouth are to be removed The mouth prop described here leaves the mouth entirely unobstructed, and it cannot possibly slip Practically any tooth on either side can be extracted without interference by the prop

The device consists of an open frame made of oval wire, shaped so that it lies in the sulcus between the cheek and the jaws at the top and bottom of the mouth The front ends of the frame are bent to form rests for the edges of the upper and lower incisors When in position the frame lies inside the cheek, between the cheek and the gum over the apices of the teeth and is right out of the way, as will be seen from the illustration

The illustration shows the mouth prop in position on a skull Being smooth and polished the prop slips into the mouth quite easily When in position the cheek keeps it there, and should the mouth be opened wider the prop does not move or get out of place I have found that patients, as a rule, prefer it to the ordinary gag, as there is nothing for them to feel with the tongue A piece of rubber tubing is pushed over the ends where the teeth rest, and the whole thing is simple and easily sterilised Three sizes are necessary for all ordinary cases, and it can be used on either side of the mouth It can also be made for cases where the upper or lower incisors are missing, the hook in this case being replaced by a flat pad to rest on the gum For surgical purposes it can be made for use in edentulous mouths by having two gum rests instead of the hooks



I have used it frequently in my practice and found it extremely useful, extractions of the four first molars being made very much easier, especially if the anæsthetist is not too expert with Mason's gag For operations on the tonsils and throat I should think it would be ideal. It is also useful in the case of very young children, as it is impossible for them to push it out with the tongue or to move it without putting the hand to the mouth There are, of course, certain cases where it would not be suitable, as when the incisors only are to be extracted, or when the jaws are abnormally shaped, but for the majority of cases I think it will be found to be a great improvement upon the types at present in general use

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THE LANCET.

LONDON SATURDAY, FEBRUARY 5, 1927

THE PAYING PATIENT.

ONCE again we are reminded by outspoken words from a prominent medical man of the inevitable changes which are lying ahead in the administration of our voluntary hospitals. and some of these changes need no longer be called inevitable, for they have passed beyond such a stage and have begun to occur Mr R G HOGARTH, the President of the British Medical Association in the short address on the future of voluntary hospitals, which is published in another column this week, sets out the present position. with attractive arguments for its reform in certain directions, and he will find few to gainsay the words that he has spoken, but many may wish that he had allowed himself time to consider more fully the position of the paying patient, whose arrival, as a serious proposition in hospital management, he notes, and whose more frequent occurrence he prophecies on the strongest evidence

The practical difficulties inherent in the introduction of the extension to paying patients of the amenities of the voluntary general hospitals will not prevent their increasing presence One of these—namely, the avoidance of all risk lest beds upon which the poor have absolute claims may be filled by more prosperous patients—is a matter which we look with confidence to see cared for in the strictest manner by all hospital committees, in conjunction with all hospital staffs Strict supervision and much tact are here required, but the right procedure can be ascertained in most cases, and the public may feel assured that the grand charity of the institutions will never be allowed to undergo curtailment But a completely new difficulty in hospital administration is brought about with the appearance of paying patients From those who had nothing nothing was expected to them all was given, and given with the lavish attention that was implied in the subscriptions and donations of the public The public gave the money, the medical workers gave all else With the introduction of paying patients, the question of what should be paid for arises, and here we have a difficulty to meet which no common pattern has been devised, so as to be followed by either the medical or the lay administration of the hospitals, nor have the ramifications of the difficulty been thought out in detail or made the subject of any authoritative advice In true British style we have got into the middle of the situation before designing the best ways out, equitable solutions of the various problems will arise, not, perhaps, uniformly but none the less well adapted to meet different emergencies, but so much evidence of the growth of pay-wards is now available that some orderly plans to meet the position as it arises, would be welcome Certain sound proposals have received concrete form in decisions of the Representative Body of the British Medical Association but we do not know of many hospitals which regulate by these the admission of private in patients The circumstances that have brought about the demand for paying wards in general hospitals and for the establishment of paying hospitals need no description—all are familiar with the big underlying facts First, a vast class of patients, having no claim on charity, and not dreaming of putting one forward, cannot meet the expenses accompanying many serious illnesses, and secondly, for certain of these illnesses, whatever the private means of the patient, institutional treatment is the best course Accordingly pay-wards are widely needed and being provided At the end of last year a report on the voluntary hospitals of Great Britain appeared, in which Mr R H P ORDE, the acting director of the hospital service of the joint Red Cross Council, gave some notable figures By these he showed that in a grand total, composed of nearly 39,000 beds in general hospitals, and 7300 in special hospitals, 75 per cent of the institutions had a credit balance while the payment by patients, either of the full or partial costs of maintenance, or by certain direct weekly fees, was playing a considerable *rôle in bringing* this favourable position about This is a tale of moderate success, and even of great success when the position is compared to that of the previous decade, but in the favourable struggle to maintain solvency no provision is made for large and inevitable capital expenditures, to meet which grants and subsidies must still be hoped for Certainly there is no surplus here which can be relied upon to provide any payment for medical service, if it should be posited that paying patients have a right, after the preferential claims of the poor have been met, to all the amenities of hospital service upon payment of establishment charges only

This situation cannot be expected to escape professional attention, it has been much before the eyes of medical men, but regularly eludes those of the lay public Modern medicine and surgery are day by day being made more available to every class of the community, but while the prime reason for the existence of voluntary hospitals will not be lost sight of, the relations between the public and their medical advisors must not be weakened The value of these relations is spoken of in terms of money when the question of fees is debated; but money does not represent the essential value, although it is the element which forms the convenient subject for discussion here The patient whose means allow him to go to a private nursing home does so with complete freedom and choice as regards the services of his physician or surgeon, in many cases he remains in the care of his own private practitioner who calls in such consultant advice as he deems wise. The connexion other than that of fees remains undisturbed While it would be impossible for such a system as prevails in these homes to run concurrently with hospital routine in a general hospital, will it be feasible for it to remain in force in paying wards attached to a general hospital? If not, paying patients may lose forms of coöperation in their treatment which would prove salutary, and retention at home may be insisted upon where every feature in the case calls for institutional care We have here but one problem of many which the arrival of paying-wards heralds, but it is one of importance

FEE STANDARDISATION.

LATELY a judge in Belfast has decided that a doctor is not entitled to grade his charges according to his patient's means Capacity to pay, it seems on this judgment, must not be taken into account, the doctor must place rich and poor upon an absolute equality when he makes out his charges Is this the idiosyncrasy of an individual judge, or do the law courts begin to perceive a change in public opinion which future decisions must reflect? At present there is a legal implication that a professional man is to be paid for exercising his professional skill If no figure is agreed beforehand, the law courts will allow him to recover what is just and reasonable If any scale of charges is established as customary, that scale will be taken to be just and reasonable General practitioners have undoubtedly established the custom of grading their fees according to the patient's income, the income being roughly estimated by the supposed rental of the house This time-honoured arrangement has for many years been recorded, amongst other places, in the pages of "Whitaker's Almanack," where the relation between house rent and fees (still expressed in the old pre-war values) is published in parallel columns for the information of the public The principle involved in these figures has not been challenged, it is regularly advanced as an accepted one in the unfortunate case of a legal dispute about medical fees, and judgments adverse to practitioners have been founded without exception, we think, upon other circumstances than the consideration of the charges in combination with the house-rent paid Perhaps the principle was, in part, developed from the ancient notion—applicable still to the fees of the barrister, though no longer applicable to those of the doctor—that professional remuneration is a honorarium, or, to descend from the fine Latin word to colloquialism, a tip, it would be surprising if a railway porter reckoned his expectations on the same scale for the first-class and the third-class traveller Judges have not hitherto rejected the principle that medical fees should be graded according to the patient's income, and they have been known to give definite support to the subsidiary, or perhaps converse, principle that a practitioner living in a district frequented by professional leaders, or where rents and other expenses are heavy, may charge a higher fee than one living in a country village It may be taken, we think, that, whatever the historical basis for the procedure may be, it is generally conceded that medical fees, in the public and professional interest alike, can be graded in a general way upon the pecuniary position of the patient as judged by his residential status

But this method of charging is, of course, one of rough justice, and the appearances of material prosperity are often deceptive Here the practitioner, to the great comfort of both parties, may sometimes be able to have the situation made clear by a mutual arrangement, although this is not as simple an affair in general practice as in consultant work The fee of the consultant is very usually settled, after an interchange of confidences between the patient and the general practitioner, in the case of a particular service No such rosy opportunity arises for the family practitioner to arrive at what should be his own charges for general and perhaps prolonged attendance The specialist can maintain his fixed scale of fees, ascertainable in advance Like the fashionable advocate in the law-courts, his fee may be high because his services are in high demand, though, unlike the barrister, he cannot manage to attend to several cases simultaneously The general practitioner is in a different position, his situation indeed must be unique among professional men He can hardly refuse his services; he can hardly haggle with his patient on the doorstep, and he cannot exactly foresee the nature of the work which he is about to undertake When it is remembered that the patient ultimately receives an account which comes to him retrospectively as a total of items, neither checked nor agreed, it is significant that the doctor's bill is so seldom questioned

Are we approaching a change of method? House rentals no longer furnish so good a guide to the assessment of income as in the days when large houses were more readily inhabited The panel system is gradually accustoming a large proportion of the medical profession to the rigid tariff of scheduled charges If and when the whole of our population is treated by a State medical service—which some expect and of these some hope—fees will either be standardised or entirely abolished Meanwhile, in grading his fees according to the capacity to pay, the medical practitioner does but pass on to his patients the system applied to himself as a payer of rates and taxes

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THE EDUCATION OF THE DEAF IN THE UNITED STATES

A REPORT of a visit to American schools for the deaf, paid in 1923 by Mr SIBLEY HAYCOCK, headmaster of the Langside School, at Glasgow, gives valuable information on the subject It has been published by the National Association for the Oral Instruction of the Deaf, in association with the National College of the Teachers of the Deaf, and should prove of great utility to educational workers along similar lines in this country, for it summarises the position in the States and indicates directions in which advances may be reasonably expected in the future on both sides of the Atlantic Mr HAYCOCK gives a general review of the chief features of education of the deaf in the United States, and in places where he has found it impossible to combine a broad view with mention of details he supplies references or addresses so that further information can be obtained from American sources He points out that, as in America education, general and special alike, is a function of each separate State and not of the Federal Government, many educational units perform their functions through many legislative boards in determining the rules and policy for the training of youth, a fact which renders it hard to justify general statements regarding the education of deaf children as a whole in the United States All the States in the Union, with the exception of Wyoming, Delaware, Nevada, and New Hampshire maintain, either wholly or partly, residential institutions for the education of the deaf children, while "Gertrude" and her little friends can resort, at the expense of their separate States, to the nearest State-supported schools in their proximity There are 64 public residential schools, of which 45 are entirely supported by the States in which they are respectively situated, while the remaining 19 are partially subsidised from the funds of the State, or from school fees or voluntary contributions The State, however, obtains little private relief, for only 11 institutions have fee-paying pupils, while 13 receive partial support from voluntary sources Here there is room for improvement When the geographical area and population of the United States are considered, the provision for the education of the deaf subject will not be found very large as far as residential institutions are concerned, but there are 78 public day schools for the deaf in the States, the majority of which are supported either by the State or by the city in which they are to be found, with or without public subsidy, and Mr HAYCOCK was impressed by the size of some of the institutions But all with practical experience of imparting instruction to large classes know the difficulty inherent in them, which must be accentuated when the pupils are not of either normal or comparable standards There are in America residential schools for the deaf where pupils ranging from 7 years to 23 years, or older, are gathered together under a single roof, and it is obvious that here great changes in the grouping of pupils of such dissimilar age must take place before organisation can be evolved dealing with many of the problems that are presented It is good to know that more individual and homelike attention is being provided by progressive centres

The chief support of all the institutions depends upon the "appropriations," as they are styled, and the usual procedure seems for the State Board of Education to obtain a grant by vote of the State legislature, and to apportion the results to the various institutions under its ægis according to the several needs in each category, when, as may well happen, a particular institution does not secure the amount for which it has budgeted a "deficiency appropriation" is provided This is an excellent method of meeting the financial needs, and it is to be hoped that the principle prevails under which help is given in proportion to the amount of self-help manifested It would be excellent that similar appeals, partly State and partly popular, were feasible in this country where the need is equally sore For the similarity of conditions prevailing in the City of New York and in "County Council London" is brought out by the following comparison the money appropriated for the education of deaf children attending the New York City day school, taking the average for the two years, April 1st, 1921–March 31st, 1923, works out for 358 pupils at £84 per child per annum; while the cost of educating 340 deaf children at the London County Council day schools during the same two years works out at approximately £80 In both cases an average attendance was assumed, but it must be remembered that a majority of the American States have no compulsory law enforcing the attendance of deaf children at school, while the arrangements in those States where compulsory legislation is in effect are not uniform Some degree of difficulty in getting the deaf population into school at the desired age appears to be experienced throughout the States, despite the efforts of sympathetic workers, and failure to provide early education for the children is made the subject of some critical remarks But the report records that every deaf child in the United States is assured of a good elementary education, and further has an opportunity for receiving secondary and even college training when capable of profiting by them The problem of how to ensure the early education and instruction of these afflicted children remains largely to be dealt with Pupils who can justly aspire to a college education will find their needs catered for at the Gallaudet College for the Higher Education of the Deaf at Washington, and it is a good testimony to the way in which Mr HAYCOCK has done his work that the foreword to his book should be a criticism of it from Prof I S FUSFIELD of that College, and editor of the "*American Annals of the Deaf*" Prof FUSFIELD finds Mr HAYCOCK's report "an open-minded, outspoken review, correctly focused," and recognises that a careful study of it is needed, because "it has sought out the pertinent facts in the American plan, and analysed them constructively"

An epitome of the curriculum for the pupils at Gallaudet, where the students at the time of Mr HAYCOCK's visit numbered 134, states that 130 of these were drawn from the residential institutions for the deaf, and represent approximately 3 per cent of the sum total of pupils of those schools Applicants for admission are only admitted to the preparatory class when well grounded in elementary studies, especially in mathematics The charge for board, lodging, and tuition is 500 dollars for the academic year, but there are opportunities for the students to earn part of this money by labour in the College and without—a certain number of the male students, for example, are employed in the printing offices of Washington A degree is offered to Gallaudet students after three years' study, when it is to be remembered that vocational training receives particular attention By reason of the longer school period prescribed in America than in England the education of deaf children seems in advance of that point which the education of the English deaf children reaches, and results at the best of the residential schools, especially in the Eastern States, are, age for age, better in America than with us But Mr HAYCOCK does not attribute this entirely to the extended period of education or to the longer school hours, but points to the superior organisation of the institutions, their better equipment, and their better staffing None the less, it appears from other sections of the report that the supply, training, and certification of teachers remain for the American schools, as for ours, a serious problem.

Annotations.

"Ne quid nimis"

THE SALE OF PHENOLIC DISINFECTANTS

THE pharmaceutical press has for some time been exercised over the question of the sale of disinfectants by oilmen, grocers, and similar tradesmen The qualified pharmacist appears to suffer under a real grievance, which in fact involves the whole question of the use of disinfectants Why do people use disinfectants? It would probably be difficult to obtain from the average user a clear answer to such a question There is no doubt a widespread and rather touching faith in the hygienic properties of anything possessing a phenolic or tarry smell It is, perhaps, on the whole as well that this should be so, but there is some danger that a false sense of security may thereby be engendered and also that the free use of disinfectants may be considered as a substitute for cleanliness Further, the experience of the past shows that there is definite risk in the unrestricted sale of substances which from their very nature must be more or less poisonous to human beings and domestic animals This danger has been recognised by the Pharmaceutical Society and the Privy Council, the bodies on whom the legislature has placed the onus of safeguarding the public in such matters By the Pharmacy Act of 1868 chemists and druggists were given the monopoly of the sale and dispensing of scheduled poisons—a work which, it will be understood, forms but a small part of the practice of the average pharmacist. The addition of substances to the schedule of poisons as occasion might arise was left to the initiative of the Pharmaceutical Society with ratification by the Privy Council No undue haste appears to have been shown in the matter of the inclusion of carbolic acid since the Pharmaceutical Society, moved thereto by the representations of coroners regarding the alarming number of accidents and suicides, passed the necessary resolution in 1882, and carbolic acid was scheduled in 1900 Many deaths took place in the interval largely due to careless sales By Orders in Council of Oct 1st, 1911, and Oct 12th, 1912, made under the Poisons and Pharmacy Act, 1908, all liquid preparations sold as carbolic, or carbolic acid or carbolic *substitutes*, or carbolic disinfectant, containing not more than 3 per cent of phenols shall be labelled "Poisonous—*not to be taken*," although, unlike stronger preparations, they need not be labelled "Poison," nor is the sale confined to registered pharmacists This allows a variety of products of no great germicidal value to be sold by whosoever desires so to do The liberation from German proprietary rights of the word "lysol" in 1914 enabled anyone who wished to apply this name to any product which he felt he could advantageously sell as such One result is that whilst several firms of repute make, for use by physicians and surgeons and for sale by pharmacists, preparations similar to the original lysol, other preparations are about one-sixteenth its strength That is, they are sufficiently weak to be sold by anyone The following shows that this cannot always be done with impunity A case heard at Bow-street in 1925 led Mr Graham Campbell to the decision that by usage of the trade the word "lysol" had come to mean a solution containing 50 per cent of cresols Hence he must hold that a false trade description had been applied to the article, and that the article had been sold bearing such false trade description The defendant company was fined 15 guineas on each summons with 50 guineas costs, and the retailers were treated under the Probation of Offenders Act, only being required to pay 5 guineas costs It was then suggested by the defence that this action was an attempt by pharmacists to prevent the sale of lysol by grocers

What, it may be asked, is the proper scope of phenolic disinfectants? There is a definite surgical use for sterilising dental and general surgical instruments, cleansing areas to be treated, wounds, and sponges For this work lysol is specially convenient owing to its transparency In addition to metal instruments, rubber gloves and sheets, the walls and floors of operating rooms, and all sorts of things which have been or may have been in contact with patients suffering from infectious disease need actual sterilisation, as do stools, urine, and other emanations of such patients All these are well-defined medical and surgical requirements for which it is necessary to have a clear notion of the strength and general character of the disinfectant used Where a patient is not treated at a hospital or clinic, much of the less critical work is necessarily left to the members of the household, who act under the general instructions of the doctor in charge of the case It is important, therefore, that if he orders a certain material to be used, the description should be sufficiently precise for him to know that it or its equivalent shall be obtained In addition to these definite uses many people seem to prefer disinfectants to absolute cleanliness, so masking a fetid smell with a phenolic one where the right thing would be to have no smell at all Public bodies are not exempt from blame in this matter, and although it may be argued that where it is impossible to secure cleanliness disinfection is the next best thing, yet it is difficult to see, in face of the known properties of phenol, that the sprinkling of a little carbolic powder or fluid on a garbage heap will do more than arrest decay on the surfaces actually touched by the disinfectant, whilst the bulk of the material may be fermenting and giving off foul gases and vapours

Some useful and suggestive work on the composition and properties of a variety of disinfectants, mostly phenolic in character, was published by the Medical and Health Department of Western Australia in 1924 In addition to pure carbolic acid, nine proprietary articles of the lysol group — cresol-soap solutions containing about 50 per cent of phenols, with one made from 50 per cent orthocresol and soft soap, four weaker lysol-like preparations, seven emulsified preparations, and four "phenyles" (emulsion-forming preparations of low phenol content, low cost and small bactericidal power)—were examined Tested against the same strain of colon bacillus in distilled water, the average coefficient of the 50 per cent lysol type was 2·4, of the weaker "lysols" from 0 2 to 1 6, varying with the proportion of cresol, whilst the emulsions averaged 8 4 The presence of only 3 per cent of fæces, however, necessitated in all cases an increase in strength of the solutions for the same effect to be produced Whereas the proportion of carbolic acid had to be raised 1 4 times, the cresol soap solutions needed to be raised 2 4 times, and the emulsions about 8 2 times for the same effect to be produced These results show that for sterilising clean instruments, or inert things like rubber gloves, dilutions based on the coefficient may be used But the presence of much organic matter of a kind which may form condensation products with phenols renders it necessary to use much stronger solutions than a consideration of the coefficient would suggest, and incidentally greatly decreases the value of the apparently more active emulsified liquids These facts make it all the more necessary that a medical man in advising as to the use of disinfectants should not only consider exactly what is appropriate, but should indicate that it *must* be obtained, making it clear that only pharmacists are allowed to sell preparations of the required activity

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THE Ministry of Health announces the first appointment to the panel of dental surgeons who are to advise approved societies under the National Health Insurance Scheme in their annual allotment of over £2,000,000 for the provision of dental treatment as an additional benefit This panel will enable the societies to obtain a second opinion as to the need for such treatment, to check estimates of cost received from dentists, and to standardise the materials supplied. There are to be six full-time regional dental officers in England and Wales, who will be stationed at London (2), Birmingham, Manchester, Leeds and Cardiff The appointments just made are Mr H A Mahony (Principal Regional Dental Officer) and Mr. Arthur Taylor in London, Mr J Woodford-Williams in Cardiff, Mr H G H Cowell and Mr T Dilks Page One other appointment has yet to be made The cost of the service is to be met out of the funds of approved societies providing dental benefit under the new arrangements, which have been agreed upon between representatives of the societies and the dental profession

THE FINGER-PRINTS OF IDENTICAL TWINS

A NOTE in our columns on Dec 25th 1926 referred to an interesting paper by Dr G P Crowden published in the Guy's Hospital Reports the previous October, and drawing attention to the remarkable similarity in physical make-up and mental development which characterised a pair of male twins who had come under detailed investigation Their size, shape, appearance, rate of growth, finger-prints, differential blood counts, illnesses, scholastic records, mental characteristics, muscular power, and all measurable qualities were compared, and a remarkable degree of resemblance was revealed The similarity of twins may lead in real life to many embarrassing and even sensational situations, while since the days of Terence it has furnished material for the plots of dramatists and story-tellers, it is a subject, therefore, which always leads to general discussion This has occurred in respect of Dr Crowden's twins, and our reference to the resemblance of their finger-prints has been translated by the press into a statement of absolute identity Dactylography is such a powerful weapon in legal hands, that the Commissioner of Police of the metropolis has received inquiries from finger-print experts all over the world, calling attention to the statement in various newspapers, that the finger-prints of these twins had been found to be identical, and asking for particulars As a result the Commissioner has replied to these inquiries, by pointing out that the finger-prints of these twins are not identical, and, further, that Dr Crowden had never made any assertion to that effect, contenting himself (as in our columns) with stating that they were "very much alike" Reproductions of the impressions have been obtained by New Scotland Yard and examined, with the result that the ridge characteristic data disclosed were found to be absolutely dissimilar The estimation of finger-prints is a very exact procedure, and it is clear that a superficial resemblance may conceal fundamental variations

DIURNAL TIDES OF LEUCOCYTES

IN his *Ars Anatomica* of 1714 the ingenious Dr Salmon engages in a discussion of the rate of the circulation in man Perceiving that he can obtain his answer if he knows the blood volume, cardiac output, and pulse-rate, he calculates that a man has (in modern measures) about 11 litres of blood, and that the left ventricle expels about ¾ c cm at each systole, and observes with his minute watch that the heart beats about 60 times a minute Whence he deduces that all the blood in the body goes round once in about four hours Horrified at such a violent and extravagant motion, he concludes by satisfying himself that it is much more agreeable both to nature and reason to believe that the blood ebbs and flows in harmony with the sea, and circulates twice every 24 hours We know now that it goes round once a minute, or rather faster, when the body is at rest, but this naive confidence in the harmony of man with all nature is recalled by an interesting study of the fluctuations in the number of leucocytes in the blood by Dr A F Bernard Shaw, of Newcastle, which appears in the current number of the *Journal of Pathology and Bacteriology* Dr Shaw finds that the total leucocyte count may vary by 1000 or 2000 at short intervals—15 minutes or even less—and that these small oscillations are imposed on two main tidal waves, one reaching its maximum in the afternoon, the other soon after midnight These changes are due to fluctuations in the number of neutrophile cells, and the lymphocytes and other varieties are not involved, he also produces evidence that the leucocytes are uniformly distributed in the peripheral and central circulations What is more surprising, however, is the discovery that the day and night tides occur regardless of food, exercise, and sleep, which have no clear influence on them; nor are the curves of leucocytes synchronous with the daily curve of body temperature It is shown once more that "digestion leucocytosis" is imaginary, and we hope that myth is now exploded for good But the leucocyte tides are left in a mysterious state, and it still seems likely that the apparent *independence* of food and sleep would disappear with a longer trial of an inverted mode of life It takes time for cells to multiply and grow, and rhythmical habits impressed on tissues by immemorial rhythms of personal and ancestral conformity with the clock may well last through the trivial irregularities introduced by experiment

THE WEBER COLLECTION

THE first two volumes of the great collection of Greek coins formed by the late Sir Hermann Weber, M D, were reviewed in THE LANCET on their appearance[1] The first part of the text of Mr Forrer's third volume[2] has now appeared, together with a portfolio of plates to illustrate the whole volume The coins dealt with in this portion (Nos 4744 to 6067) are those of the seaboard countries of Asia Minor from the Bosporus to Lydia, and they are illustrated on Plates 172-247 We have already mentioned the fact that by means of a special grant from the Treasury, many of the most noteworthy coins in the Collection have been acquired for the British Museum This provision has been supplemented by a grant from the National Art Collections Fund, by the generosity of private individuals, and not least by the generous opportunities for pre-emption offered by Messrs Spink and Son The extent to which the National Collection has been enriched can nowhere be better illustrated than from this section of the catalogue Among the most beautiful of ancient Greek coins are the rare gold staters, dating from the early fourth century B C, of the celebrated Hellespontine city of Lampsacus The Weber Collection contained no less than nine of these staters, of which two are unique, two known only by one other specimen of each, and a fifth known only by two other specimens All five coins are now in the British Museum, including a remarkable coin which has for type a Nike sacrificing a ram

Farther along the coast of the Propontis was another of the big coin-producing cities of antiquity, the town of Cyzicus, whose electrum staters took the place of an international gold currency during the centuries before Philip of Macedon opened the Pangæan gold mines, and Alexander the Great after him sent the great stores of gold from his Eastern conquests into currency This electrum is a natural alloy of gold and silver washed down by the great rivers of Asia Minor, and it was in this metal that the peoples of the Ionic seaboard first coined money, probably ca 750 B C Many of the cities of this part of the world have primitive coins of electrum, and in some places the use of the metal persists, although silver may also have become available The Cyzicene staters are much sought after by the collector, and it is surprising to find as many as 41 in the Weber Collection Many of these derive from famous collections of the last century, including those of Lord Ashburnham and Canon Greenwell Other electrum coins here represented are those of Phocæa, the small unidentified early coins of the cities of Ionia, the pretty one-sixth stater pieces of Lesbos, and two of the electrum staters which in recent years Prof P Gardner has identified as the coinage of the towns leagued together in the Ionian revolt against Persia at the end of the sixth century B C A later example of a presumed federal or alliance coinage is perhaps to be found in two examples at Ephesus of the very rare coins issued about 390 B C by Ephesus, Rhodes, Cnidus, Iasus and Samos These coins bear a common type, the infant Herakles strangling the two serpents, but if thereby an alliance is denoted no literary record of the event has survived Among other coins of outstanding interest are a unique tetradrachm of Smyrna of the fourth century B C well known from previous publications, a superb tetradrachm of Cnidus, two fine tetradrachms of Cos, and a very fine and rare stater of Amastris These coins are now all in the British Museum, the coin of Cnidus being a contribution from the National Arts Collection Fund Many of the cities weak to be sold by anyone The following shows that this cannot always be done with impunity A case heard at Bow-street in 1925 led Mr Graham Campbell to the decision that by usage of the trade the word "lysol" had come to mean a solution containing 50 per cent of cresols. Hence he must hold that a false trade description had been applied to the article, and that the article had been sold bearing such false trade description The defendant company was fined 15 guineas on each summons with 50 guineas costs, and the retailers were treated under the Probation of Offenders Act, only being required to pay 5 guineas costs It was then suggested by the defence that this action was an attempt by pharmacists to prevent the sale of lysol by grocers

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[1] THE LANCET, 1923, i, 199 and 1925, i, 665

[2] The Weber Collection Vol iii, Part 1, Asia, Bosporus, Colchis Pontus Paphlagonia, Bithynia, Mysia Troas Aeolis, Lesbos Ionia, Caria, Lydia By L Forrer London Spink and Son 1926 Pp 473 With portfolio of 136 plates £4 4s

What, it may be asked, is the proper scope of phenolic disinfectants? There is a definite surgical use for sterilising dental and general surgical instruments, cleansing areas to be treated, wounds, and sponges For this work lysol is specially convenient owing to its transparency In addition to metal instruments, rubber gloves and sheets, the walls and floors of operating rooms, and all sorts of things which have been or may have been in contact with patients suffering from infectious disease need actual sterilisation, as do stools, urine, and other emanations of such patients All these are well-defined medical and surgical requirements for which it is necessary to have a clear notion of the strength and general character of the disinfectant used. Where a patient is not treated at a hospital or clinic, much of the less critical work is necessarily left to the members of the household, who act under the general instructions of the doctor in charge of the case It is important, therefore, that if he orders a certain material to be used, the description should be sufficiently precise for him to know that it or its equivalent shall be obtained In addition to these definite uses many people seem to prefer disinfectants to absolute cleanliness, so masking a fetid smell with a phenolic one where the right thing would be to have no smell at all Public bodies are not exempt from blame in this matter, and although it may be argued that where it is impossible to secure cleanliness disinfection is the next best thing, yet it is difficult to see, in face of the known properties of phenol, that the sprinkling of a little carbolic powder or fluid on a garbage heap will do more than arrest decay on the surfaces actually touched by the disinfectant, whilst the bulk of the material may be fermenting and giving off foul gases and vapours

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A NOTE in our columns on Dec 25th, 1926 referred to an interesting paper by Dr G P Crowden published in the Guy's Hospital Reports the previous October and drawing attention to the remarkable similarity in physical make-up and mental development which characterised a pair of male twins who had come under detailed investigation Their size, depends on the recognition of the underlying nephritis. A constant specific gravity of the urine with high blood-urea and a diminished power of excreting dyes and urea are characteristic Albuminuria alone cannot be implicitly relied upon as a sign, and may be very slight Recently Dr F W Lathrop[2] has published a typical case of that type of renal dwarfism in which the deformity arises early in the second decade His paper is of special interest because of the very complete analysis of the blood which he records and the number of interesting biochemical problems raised in his commentary on the case In addition to severe acidosis and nitrogen-retention, phosphorus was present in the blood in roughly double its normal amount, whilst calcium was found in just over half its usual quantity, the deficiency being at the expense of the combined or un-ionised form. These changes are similar to those found in advanced renal inefficiency in adults, but it is suggested that when they occur in children before the epiphyses have united they cause failure of calcification at the epiphyses and consequently dwarfing and deformity This seems very probable It would be interesting to know whether the change in calcium and phosphorus values coincides with the onset of deformity The fact that in nearly every recorded case the deformity has been followed by death in less than two years suggests that it occurs only in the advanced stages of the disease when such changes in the calcium and phosphorus values would be present The absence of tetany in spite of such a deficiency of calcium is attributed to the fact that the normal amount of ionised calcium was maintained Dr Lathrop regards those cases in which deformity occurs in early childhood as an "allied condition." Probably there is no essential distinction, and the age of onset of deformity is determined by the rate of progress of the renal condition

THE MEDICAL SERVICE OF CHINESE ARMIES

Dr C M Oman, a captain in the Medical Corps of the U.S Navy, who has spent the last two and a half years in Pekin, has given his impressions of the medical service of Chinese armies in the *Military Surgeon* for January He writes from an experience of the treatment of 5000 military casualties There is, he says medical organisation of a sort, it was laid down for the Chinese Army in 1912, when the Pekin Army Medical College was established to provide trained medical officers Theoretical instruction has been given, but there seems to have been no dissection, no laboratory work, and little or no clinical work attached to it These officers are available to help the Chinese army, but there is no Chinese army at present There are many armies, numbering in all about 1¼ million, who billet themselves on the inhabitants They have no hygiene as we understand it, no purified water, no isolation for infectious diseases, no latrines, no anti-tetanic serum There is in China no tradition inculcating care of sick or wounded There are few trained surgeons, probably not 30 in all China, able to do abdominal work Dr Oman once found a force of 18,000 men with but one medical officer, and he with no effective orderlies or nurses, no instruments but his own, no operating room or X ray outfit, no prearranged transport for his wounded The Chinese have become accustomed to trusting to the humanity of foreign medical agencies for the care of their wounded Dr Oman tells of a battle near Tientsin in 1925, when the best Chinese army—that of Feng Yu Hsiang—left its wounded to find their way to Pekin, 70 miles away They began to arrive in a couple of days, and soon there were some 2000 to be cared for As no Chinese came forward the Pekin Union Medical College, foreign doctors and laymen, equipped and staffed a casualty hospital This situation repeated itself a few months later, and the Kuominchun army paid nothing for the help thus afforded But there is some evidence of a changing outlook The *World's Health* for November last tells of the spread of nursing education in China under the International Red Cross, and its almanac asserts that many wounded men have been cared for in the four Red Cross hospitals in Shanghai Shanghai is also the centre of an active health propaganda, of which Dr W W Peter's pictures are the most telling feature

POTENTIAL REDUCTION OF CANCER MORTALITY

To a recent meeting of the Section of Epidemiology of the Royal Society of Medicine, Prof Major Greenwood and Dr Janet Lane-Claypon contributed a paper on the possibility of reducing the present mortality from cancer of the breast and uterus The views advanced were based on results obtainable with present methods of treatment, and did not take into account any reduction already effected by operative procedures In the first place, Dr Greenwood and Dr Lane-Claypon took out the age-distribution of the registered deaths from cancer of the breast and uterus, and compared them with the age-distribution of hospital applicants for treatment who were suffering from these diseases The figures for the mortality-rates for this country at the different age-periods were taken from those prepared for and published by the League of Nations It was found that whereas 24 per cent of all deaths from cancer of the breast occurred among women over the age of 70, and 46 7 per cent over the age of 60, the percentages of applicants of those ages compared with the total number of patients were 2 8 and 17 6 respectively Hence, although the mortality-rates are high at the extreme of life, the number of applicants for treatment is small Similarly, although the mortality from cancer of the uterus in these two age-periods was 14 4 per cent and 37 8 per cent of the whole mortality from this disease, the numbers of hospital applicants of these ages were only 2 1 per cent and 17 1 per cent of the total numbers In order not to over-estimate the possibilities it was assumed that no reduction in mortality can be effected among women over the age of 70, a supposition which errs on the safe side Figures prepared in part from the literature and in part from data specially obtained from hospitals in this country, showed that youth does not offer any disability as to results of operation This being so, it may be assumed that all women under the age of 70 are equally capable of being treated successfully, and hence, theoretically, about 75 per cent of patients suffering from cancer of the breast and 85 6 per cent of those suffering from cancer of the uterus are capable of receiving such benefit as is offered by present treatments Dr Greenwood and Dr Lane-Claypon stated that not more than 50 per cent of all women dying of cancer of the breast can be found to have made any application for effective treatment—i e, treatment of a nature likely to secure permanent removal of the disease The corresponding figure for cancer of the uterus is not as yet available, but is believed to be rather worse The Leeds statistics already published show that if radical operation is undertaken at a stage of the disease when the growth is still confined to the breast, 80 per cent of the patients are alive ten years or more after operation After further analysis and comparison of the above data, Dr Greenwood and Dr Lane-Claypon concluded that a 50 per cent reduction in the mortality from cancer of the breast could be achieved with present methods if all women would attend for radical operation at an early stage of the disease Similar results could be obtained with cancer of the uterus At the present time, they state, the condition of little more than half of all the applicants for treatment is operable and in many of these the disease is in an advanced stage The present operative mortality-rate for all cases may be taken at about 17 3 per cent, and the survival-rate at 10 years at about 32 6 per cent of all cases operated If the patients were all in the early stage of the disease, the operative mortality would be reduced, and at the same time the survival-rate would where the coinage is less spectacular are well represented, and there are many varieties, new or not well-known, of the later imperial coinage of the Greek towns when under the rule of the Roman Emperors. It remains to add that Mr. Forrer has performed his pleasant task with the thoroughness and care which marked the earlier volumes.

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[2] Arch Int Med, 1926, vol xxxviii, No 5, p 612

DIAPHRAGMATIC HERNIA

HERNIA through the diaphragm was known as long ago as the days of Ambroise Paré. At the autopsy on an officer who died in great pain eight months after a bullet wound, Paré found a large distended loop of the colon in the thoracic cavity; the hole by which it had entered was, he tells us, too small to admit the little finger. For many decades, however, the condition remained a mere curiosity of the dissecting-table. Now and again a writer would describe it, and suggest such remedies as bandaging and blistering. Bowditch and Péan, in 1865 and 1880 respectively, justified operation as a last resort, but on the whole the condition received little attention until the late war, when the daily occurrence of cases similar to Paré's brought it into prominence and enabled it to be studied exhaustively. Moreover, the use of X-rays revealed a group of herniæ that were congenital and not traumatic at all, and a whole series that would never have been discovered, because of the absence of strangulation. Dr. Jean Quénu,[1] in a recent summary of the subject to which he contributes much first-hand information, gives an idea of the frequency of diaphragmatic hernia when he states that there are now over 1500 cases in the literature. He classifies it as congenital and traumatic. The congenital form is due to a failure of the two parts of the diaphragm to meet properly, and so nearly always occurs postero-laterally. It is much more common on the left side, probably because the liver protects the right cupola, whereas the stomach exerts heavy pressure on the left. Traumatic herniæ, which are always left-sided, are generally the result of stabbing or shooting wounds. Often the hernia is not immediate but takes place some time afterwards, when a blow or violent effort forces the weak barrier of the healed scar. Nevertheless, Dr. Quénu holds that many so-called secondary herniæ are really primary ones which have been neglected. A congenital hernia, he finds, nearly always involves the stomach, the transverse colon and the great omentum, and sometimes takes in parts of the small intestine, cæcum, liver, and pancreas. The organs are, as a rule, free from attachment to the thoracic cavity and are easy to withdraw, but sometimes, when an old traumatic hernia has coincided with a more or less septic hæmothorax, there are very intractable adhesions. The great omentum may form a false sac over the intruding mass. The true sac is very rare and is hardly ever seen except in "fœtal" herniæ—i.e., those developed later in the intra-uterine life than the congenital or embryonic herniæ. It is easy to realise that strangulation at the point of rupture may cause very severe lesions, such as perforation, with an escape of gastric or intestinal contents into the pleural cavity.

According to Dr. Quénu, the symptoms of a large hernia involving both stomach and colon are those of acute gastric, intestinal, or cardio-pulmonary disturbances, always accentuated by meals. Signs of displacement are sometimes fairly obvious and sometimes elusive; they vary in different patients, and in the same patient from time to time, and alter with changes of position or the presence of food in the alimentary tract. Radiography often makes diagnosis a simple matter, and the hernia can sometimes not only be seen but be accurately measured; some cases, however, simulate diverticulum of the œsophagus or an abnormally high cupola of the diaphragm. The former are generally exposed by watching the way in which the pocket fills and empties, and by the presence of the shadow of a normal stomach underneath. The latter may offer some difficulty, especially when the diaphragmatic condition is of the kind described by J.-L. Petit in 1780 as "eventration," when the diaphragm undergoes distension at one point and is pushed upwards into the pleura in the shape of a deep, narrow dome. When this has happened, the resulting photograph is practically identical with one of a hernia. Dr. Quénu recounts various ways of making the diaphragm cast a clearer shadow and reveal its position, and correctness of diagnosis is important in that, whereas hernia demands operation, eventration is generally better left alone.

The treatment varies according to whether the hernia is a traumatic or strangulated one requiring immediate operation, or one which can be dealt with at a chosen time. Dr. Quénu describes as the typical operation one which begins with an exploratory incision in an intercostal space, varying from the sixth to the tenth according to the site of the rupture. The aperture is prolonged through the abdominal wall to the middle line, opening all the soft parts and the peritoneum. An incision is then made through the costal cartilage and the diaphragm to the site of the hernia. Adhesions are freed and the ectopic organs withdrawn. The orifice is obliterated and the diaphragm sewn up at different points as far as the chondral attachments. In closing the thorax, the intrapleural air is exhausted with a syringe. The pneumothorax produced by the operation has never been known to have ill-effects, and the diaphragm heals extremely well. If much of its substance has to be removed, there are several ways of filling the gap. Different operators have used the stomach, a piece of omentum, the left lobe of the liver, a lung, or a graft of muscle from the abdominal wall. Dr. Quénu suggests that a free graft of aponeurosis might be the most satisfactory method, but it has not yet been tried. Operation for strangulated diaphragmatic hernia is an emergency, and the condition is very grave indeed, but the method described allows the patient the most reasonable chance of recovery.

RENAL DWARFISM

IT is mainly owing to Dr. H. Barber, who published[1] the first three cases of his remarkable series in 1913, that the rare condition known as renal dwarfism has been rescued from the limbo of "late rickets" and recognised as a separate entity. Its importance lies in the invariably fatal results that follow operative treatment of the deformities associated with it. The fundamental pathology consists of an extreme degree of chronic interstitial nephritis, unaccompanied by œdema, and with little or no cardiovascular hypertrophy. In the later stages calcification at the epiphyses becomes very deficient and deformity commonly follows. Great stunting of growth is a feature in all cases, and girls are affected rather more often than boys. The renal symptoms appear insidiously in early childhood with thirst and polyuria and may pass unrecognised by the parents, but gradually attacks of drowsiness, headache, and vomiting supervene, and death in uræmia occurs on the average about the twelfth year. Deformity is present in some 70 per cent. of cases and may come on before the symptoms of renal disease are noticed. The type varies with the age of onset. Before the age of nine it takes the form of slipping and displacement of the epiphysis on the diaphysis. The lesions are painless. They affect mainly the knees and wrists, but frequently the ankles and shoulders as well, and cause great disability. Radiographically the appearance is striking and distinctive. After the age of nine separation of epiphyses does not occur, and the deformities cannot be distinguished from those of so-called late rickets. Genu valgum is by far the most common deformity in this type of case. The diagnosis is usually easy if the condition is borne in mind, and

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[1] Arch. Méd. Chir. de l'App. Resp., 1926, i., 356.

[1] Brit. Med. Jour., 1913, ii., 1204.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCIX—TREATMENT OF UNUNITED FRACTURES

II SPECIAL FRACTURES

LAST week the general principles governing the treatment of ununited fractures were summarised, special stress being laid on recognition of the fact that the success of any method depends entirely on the production by the body of callus which is adequate in quantity and in density; failing this, no mechanical device will long resist severe external stress, such as the effects of gravity, or powerful muscle contractions

Each bone is apt to present certain special features which demand brief reference

The Humerus

(*a*) When the gap between the ends of an ununited fracture of the humerus is only a moderate one, it is best to shorten the arm by rawing the bone ends and cutting each in the form of a step so that they fit together

The contact can be maintained accurately for a time by drilling the ends and anchoring them together with strong catgut This prevents displacement during the application of a plaster-splint, such a splint is necessary, since even stout wire may cut its way through the bone and fail to keep the alignment correct long enough for callus to form The plaster should fix the elbow by including the forearm, and also the shoulder, and to do this comfortably it should take its bearing from the pelvis and lower ribs

If the upper fragment is short—i e, ending above the insertion of the deltoid—the arm should be put up in full abduction, but at lower levels any angle which is wide enough to permit comfortable application of the plaster is sufficient

(*b*) If the gap between the ends of the humerus is so great that an attempt to secure end-to-end union would shorten the arm unduly—e g, more than two inches—then it is best filled by a heavy graft from the crest of the tibia

As there is a great leverage on such a graft, once the plaster has been removed, it is usually best to apply it in the form of two parallel struts, one lying for about one inch or more on the surface of each fragment, which has been rawed to receive it, and the second wedged into the medullary cavity of each end This is one of the exceptions to the rule that intramedullary grafts are bad, for in this case the central graft is only expected to fulfil a mechanical function in steadying the fragments, while the inlay graft and the rawed cancellous bone produce callus The ultimate absorption of the central graft is thus immaterial Once the graft is driven into each medullary cavity a little coaxing being required to get it into the second end, it holds itself; the inlay graft needs fixing either by ligatures of strong catgut encircling the shaft, or by sutures through the periosteum.

Immediately after the operation a plaster support should be applied If it is well reinforced in the axilla it is possible later to cut a large lid out of the upper arm portion, and through the window so formed the stitches can be removed. while massage can be given to the limb and the muscles stimulated to contract in order to improve the nutrition of the graft without putting any strain upon it Later the forearm also can be freed and some voluntary movements of shoulder and elbow permitted before the full range is allowed An alternative to the plaster splint is the so-called 'aeroplane" one, made of light metal struts, taking their bearing on chest and pelvis, keeping the shoulder abducted, and allowing traction from the elbow

Radius

(*a*) Ununited fractures of the neck of the radius, in which the head is displaced, and there is disability in connexion with rotation of the forearm, or use of the elbow, are best treated by excision of the head through a small incision over its posterior aspect Care must be taken not to injure the posterior interosseus nerve in its course round the outer aspect of the bone, and not to leave any raw bone, which might produce spurs and so again interfere with joint movement No splint is necessary after operation

(*b*) An ununited fracture of the shaft of the radius is likely to be a very disabling condition, as the carpus works almost entirely on the radius

A short gap is best bridged, after each end has been rawed, by a thin sliver-graft, which is easily cut from the surface of the longer fragment by a wide gouge, for the bone is light and vascular, such a graft, attached by catgut ligatures to a rawed surface on each fragment, usually causes a rapid production of callus, in which the normal architecture of the bone is quickly reproduced

Where the gap is a long one such a light graft would be inadequate to stand the strain, and a heavy one from the front of the tibia should be used, applied similarly, and, as union at the areas of contact is rapid, although the part between may be very slow to become vascularised, it is likely to be sufficiently strong to stand the leverage of the hand until this occurs

When a long gap in the radius is associated with much destruction and fibrosis of the soft parts, a tibial graft would have very little chance of surviving, since the thin skin of the scarred area is likely to slough over it, therefore, in such a case, it is best to shorten the ulna so as to reduce the gap completely, or at least almost so This should be done at one session, the radius being rawed and, if necessary, grafted at a subsequent operation, after the ulna is again united and available as a splint to the other bone

Fractures of the shaft of the radius are best approached from the dorsum of the forearm on one side of the radial extensors of the carpus

Ulna

Ununited fractures of the ulna in its lower third may give no disability at all, in which case they should be left alone

In the upper third they are likely to be troublesome to manual workers from interference with the action of the triceps When such a fracture is explored it is usual to find the ends of the bone sclerosed and avascular for some distance, so that a light sliding graft is unlikely to result in union A tibial graft with wide attachment to each fragment should be tried, but even this may gradually atrophy and break at the level of the gap

It is not desirable to interfere with the radius, whose integrity is vital to the use of the hand

Carpal Scaphoid

A recent discussion of the British Orthopædic Association revealed considerable divergence of opinion as to the correct treatment of ununited fractures of the carpal scaphoid

Statistics showed that in many cases such a fracture caused no disability in a manual worker, while, curiously, others with an apparently identical injury were totally incapacitated from work The former group obviously needs no treatment, the latter is usually benefited by excision of the scaphoid There was a division of opinion among the surgeons as to whether it was sufficient to remove half the scaphoid or whether it was preferable to remove the whole bone and also the semilunar, so as to allow the os magnum to telescope back into the proximal carpal row The latter procedure has given very satisfactory results in the hands of those who have used it

Femur

Formerly subcapital fractures of the *neck of the femur* were expected to result in non-union but the pioneer work of Royal Whitman has demonstrated that this should be the exception, not the rule

Although in these fractures the isolated head of the femur is cut off from its main blood-supply, its capsular attachments yet if reduction is adequate, so that the neck comes into firm contact with the raw area on the head, then good union will occur in a majority of cases, even in the very old Such reduction can only be obtained under anæsthesia and it must be followed by adequate, prolonged fixation Whitman's own method is by a long plaster spica reaching from the thorax to the toes, with the hip in full abduction extension and some internal rotation. This allows frequent turning of the patient—e g, for an rise The improvement from these causes, it is believed, would be almost certainly not less than 17 3 per cent, so that the survival-rate would reach 50 per cent of all cases As 85 6 per cent of those who die at all ages from this trouble are capable of being operated on if they could be persuaded to attend early for treatment, it follows on this calculation that not less than 42 per cent reduction could be secured among those who at present die from cancer of the uterus Dr Greenwood and Dr Lane-Claypon pointed out that the data available for this country show that the mean period elapsing after the patient has become aware of her symptoms is from 8 to 12 months for cancer of the breast (according as the cases of long duration are or are not included) and from 6 to 9 months for cancer of the uterus Hence, although a small proportion of women may be unaware of their trouble until the disease has passed its early stages, it is at least certain that in both forms of cancer there is great unnecessary delay in making application for treatment The view that a reduction of approximately 50 per cent could be effected has been confirmed statistically by calculations based on the survivals among known cases In the course of the subsequent discussion, Sir James Berry and Mr W Sampson Handley strongly emphasised the supreme importance of early treatment

THE LAW AND TRADITION OF MEDICAL PRACTICE

MR W SANDERSON and Mr E B A Rayner, both barristers-at-law, have written an interesting introduction to a complete work[1] on the law and tradition of medical practice, the projected volume being "a treatise on the rights and duties of physicians, surgeons and dentists, with a complete description of the status of apothecaries and midwives" The work contemplated will thus cover an enormous field, while the introduction deals with little more than general principles, omitting, further, any mention of public health or forensic medicine, because, as is pointed out, both subjects, while extending over a wide field of law, are adequately dealt with in existing text books The authors' description of the contact of medicine and law—that is the relation of medicine to the body politic will make useful reading to every medical practitioner We are all supposed to know the law—that is to say, to be aware of the rules that govern this relationship, but while many other citizens can ascertain with fair facility where they stand in regard to particular enactments, in no class, except among lawyers themselves, is professional routine so perpetually in touch with various general and special regulations Our pages, under the head of "Medicine and the Law," testify to the wide range of questions which fall under this title, and not a little to the presence of anomalies in administration The statements in this small book upon tradition and custom, as those upon salaries and fees, contain much information that will enable the reader to understand sociological principles as applied to the conduct of medical practice, it is pleasing to find the arguments developed on which the views are founded that the law is still developing in the wake of medical tradition, and that "the striking harmony between medicine and the body politic has been produced by the high standards of honour and service continuously exhibited by the medical profession, and has been as continuously fostered by the law under the guidance of the judges" The warning against the thoughtless granting by medical men of press interviews is scathing, and we are not surprised to learn that the terms employed should have led to a protest from the Institute of Journalists, nor that the authors should have signified willingness to modify the offending passage That mischievous or troublesome results have followed upon press interviews granted by doctors cannot be denied, and the annals of the General Medical Council can be quoted in support of this statement, but the inclusive indictment of all press reporters cannot be justified by facts

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[1] An Introduction to the Law and Tradition of Medical Practice By William Sanderson, M A., LL B, of the Inner Temple, and E B A Rayner B A, LL B, of Gray's Inn, Barrister-at-law London H K Lewis and Co, Ltd. 1926 Pp 77 *7s 6d*

THERE has been definite improvement in Sir Ernest Hodder-Williams's condition generally during the past week

THE death occurred on Jan 25th, at the age of 69, of Dr Thomas Robert Bradshaw, consulting physician to the Liverpool Royal Infirmary

SIR Berkeley Moynihan, President of the Royal College of Surgeons of England, will deliver the Hunterian Oration in the Theatre of the College on Monday, Feb 14th, at 4 P M Fellows and Members who wish to be present are asked to apply to the Secretary for cards of admission

WE publish in another column a letter from a small committee of friends and admirers of the late Sir Clifford Allbutt, who have decided to erect at Papworth two cottages with which his name will be associated, which are to be used for the accommodation of men disabled by tuberculosis The inmates will be selected from among those who are unable to support themselves and families, and the association of Sir Clifford Allbutt's name with such beneficent work is very fitting, for he was deeply interested in the work of the colony from its outset We are sure that many of our readers will welcome the opportunity of helping the good work, while testifying their appreciation of the career of a great leader, this they can do by sending donations to the fund directed to Mrs Marcus Dimsdale, Papworth Hall, Cambridge

MR J Hugh Jones, who died on Monday of influenzal pneumonia, was a benefactor of metropolitan hospitals, for it was owing to his imagination and enterprise that the scheme for providing wireless to every hospital bed was successfully realised The money, collected through the columns of the *Daily News*, exceeded £34,000, which was sufficient to equip 15,781 beds in 122 hospitals, leaving something over for Borstal schools and lighthouses At a crucial time in his early life—as he told the subscribers to the fund when accepting a presentation—he received kindness from a Manchester hospital, and formed a resolution that if ever he grew up he would endeavour to do something for hospitals to mark his gratitude Mr Jones was clear-sighted enough to look upon broadcasting as an ally and not as a menace to newspaper production

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ROYAL SANITARY INSTITUTE —A Sessional Meeting is to be held at 90, Buckingham Palace-road, London, S W 1, on Tuesday, Feb 15th, at 5 30 P M when a discussion on Immunisation Against Diphtheria will be opened by Dr William Robertson, medical officer of health for Edinburgh The chair will be taken by Sir Arthur Newsholme

CONTAMINATION OF MILK —At a conference of 149 local authorities, held at Leeds on Jan 27th, to consider the requirements of the Milk and Dairies Order of 1926 Dr J R Kaye, medical officer of health for the West Riding, said "In 42 per cent of the examples of milk we recently took we found liquid manure If a farmer does not supply pure milk," he went on, "he is not an honest man and ought not to be a churchwarden If I were a coroner I should want an inquest on every child under 12 who died from intestinal trouble I should look to milk first for the cause of death, and if I found it there I think I could win the day against the producer before a court and a sensible jury We have been too soft-hearted in the past A great deal is being done by some producers, but why should not Grade A be the standard milk? There should be a defined standard, and we ought to get real help from the magistrates instead of tinkering fines that are no use whatever" more direct evidence as to its nature was furnished by the observation that, unlike the vitamin obtained from it, the provitamin forms an addition compound with digitonin. Although the product recovered from the digitonide of ordinary cholesterol, by fractional extraction with xylol, contains the provitamin in increased amount, the complete separation of the latter from cholesterol or other sterols by this method does not appear to be practicable

Heilbron, Kamm, and Morton[9] *have recently shown* that by fractional recrystallisation cholesterol can be separated into fractions of varying provitamin content as judged by the intensity of the ultra-violet absorption spectra. We were able to test biologically, at Prof Heilbron's wish, two fractions, one of which had been found by the optical test to be four times more absorptive than ordinary cholesterol, and our biological test confirmed the spectroscopic one We are further informed by Prof Windaus that he has found it possible, by fractional distillation of cholesterol in a high vacuum to produce a 9 to 10-fold increase in provitamin content as measured by the optical test

These observations afford significant information with regard to the nature of the provitamin We may conclude that it is destroyed by bromine and by oxidation, but that it possesses the properties of a sterol, in so far as it forms an addition product with digitonin, and can be distilled in a high vacuum.

Previous work of Windaus (unpublished) had shown that the highly unsaturated sterol, ergosterol, could not be recovered unchanged from its bromide It had already been observed by its discoverer, Tanret, that this sterol is extremely sensitive to light and air (oxidation), and this fact, together with its property of forming an insoluble digitonide, suggested a resemblance to the provitamin The *admixture* in cholesterol from all animal sources (brain eggs gallstones, &c) of a sterol with more than one double bond *seemed* likely, in view of the well-known occurrence in phytosterols from vegetable oils, seeds, &c , of other representatives of this class, containing several double bonds Further from the fact that ergosterol possesses three unsaturated linkages one would expect it to show a greater absorption in the ultra-violet region than cholesterol, which has only one double bond.

We therefore took up *again, at Prof* Windaus's suggestion, the study of ergosterol, which we had previously found, after irradiation, "to be highly protective even in doses of one milligram,' when comparing it under identical conditions with 5 mg doses of irradiated cholesterol on the same batch of rats [5]

In view *of the more recent* work on the absorption spectrum of cholesterol by Heilbron, Kamm, and Morton,[9] and by Pohl,[10] we compared the absorption spectrum of ergosterol with that of *a specimen* of ordinary cholesterol, and found that ergosterol exhibited a very pronounced absorption in the ultra-violet region, the characteristic band of absorption being like that of the cholesterol at 280 μμ, but of enormously greater intensity The intensity of the absorption was estimated to be 1500–2000 times as strong as that of brain-cholesterol As the result of the irradiation this absorption band disappears just as in the case of cholesterol, at the same time the product loses its property of being *precipitated* by digitonin If the provitamin were *ergosterol*, or an unsaturated sterol of similar constitution, the amount present in ordinary cholesterol would be of the order of 0 05 per cent , or 1 part in 2000, and irradiated ergosterol should in this case possess antirachitic activity in correspondingly small doses

These assumptions have been fully *confirmed* by biological tests on rats A daily dose of 4/1000 mg of irradiated ergosterol cured and prevented rickets in rats kept on a rachitic diet Tests with still smaller quantities not yet completed, indicate that the limit of activity will prove to be less than 1/1000 mg

Conclusion

These results seem to justify the conclusion that the naturally occurring parent substance of vitamin D if not ergosterol itself, is a highly unsaturated sterol of similar constitution

It should be added that although ergosterol was originally isolated by Tanret from ergot, and named accordingly, similar or identical sterols have been obtained from a wide range of the lower plants occurring, for example, abundantly in the fat extracted *from certain yeasts The ergosterol used in our own* experiments above quoted was actually prepared from ergot, whilst that used by Prof Windaus was obtained from yeast.

This work, which will be published in detail elsewhere, is the outcome of mutual suggestions made in the course of written and verbal communications between Prof Windaus and ourselves, and Prof *Windaus will publish shortly the same results* in Germany.

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SCOTLAND.

(FROM OUR OWN CORRESPONDENT)

Influenza

THE Board of Health has issued a memorandum to medical officers of health asking for information about the prevalence of influenza The League of Nations' Health Section *has asked for all available* returns but as the disease is not notifiable in Scotland no statistics can be furnished without a special inquiry The medical officers of the principal towns are therefore asked to supply information at weekly intervals, this information being collected at schools hospitals, clinics, and factories, and from health visitors and medical practitioners

From current medical talk, I gather that in most areas in Scotland, some form of influenza is, at present *pretty common In the first* and second quarter of last year there was a considerable Scottish epidemic of influenza, mainly in the west, and the number of deaths in the 16 principal towns rose as high as 330 in April, after being 100 in March, 35 in February and 40 in January It fell again to 7 in August, and even as recently as the third week of last December *the* deaths numbered only 9 In the four weeks ending Jan. 22nd, however, there have been 56 deaths and there is thus definite indication of a *recurrence Whether* the disease is genuine influenza or not, the rising mortality shows its seriousness The respiratory diseases in general also show an increase, and for the four weeks ending Jan 22nd, *the number of deaths* corresponded to an annual death-rate of 3 8, 4 2, 3 3, and 3 2 per 1000 The average figure for the corresponding four weeks last year was 2 9 During the same period 96 cases of acute influenzal pneumonia have been notified compared with 71 last year, and 1105 cases of acute primary pneumonia compared with 784 last year. There seems *therefore* to be a perceptible increase of prevalence, but there is no very clear indication of the widespread infection which usually marks the arrival of specific influenza If the current diseases are truly influenzal it is obvious that the germ varies considerably in virulence From the wind and rain storms of November and December and the exceptional gales of January, it may perhaps be inferred that there is at least in Scotland, little probability of a wide spread serious epidemic this year But the relation of the weather to influenza is *too* uncertain perhaps, to justify even this mild prophecy hour twice a day, so as to diminish the risk of bedsores, and also allows him to be got up in a chair at the end of the first week The long is preferable to the short spica, which, to be efficient, has to include both thighs, for these elderly patients are apt to be the subjects of chronic rheumatism, so that it is undesirable to fix the good hip, lest it should stiffen A useful alternative is the Balkan-frame with a series of pulleys and with traction both in the transverse and long axes of the limb

Non-union in fractures of the *shaft of the femur* is generally due to the interposition of muscle between the ends, and when this has been removed by operation and the ends rawed, further interference is usually unnecessary

Where an actual gap is present similar methods to those which have been described in connexion with fracture of the humerus are applicable, only it must be remembered that in the lower limb shortening is most undesirable

Patella

Transverse fractures of the patella commonly result in fibrous union, owing to the intervention of fringes of torn quadriceps tendon between the fragments The fibrous tissue is likely to stretch and leave the knee weak. so that open operation is indicated, unless the patient's general condition is very unfavourable

All that is necessary is to free the bone edges, raw them and then fix them together by strong catgut sutures through the quadriceps expansion Provided that the knee is splinted in extension until bony union is shown by X rays to have occurred, it is unnecessary to use wire to fix the fragments Massage can be given early if a plaster splint is bivalved, or a Thomas knee-splint used

Tibia and Fibula

As the *tibia* is splinted to a certain extent by the fibula, it is often sufficient in treating an ununited fracture in this bone to slide down a graft of moderate thickness from its upper fragment, a groove having been made on the front of the lower fragment to receive it

A number of ununited fractures of the *fibula* give no disability, the functional result depending partly on the extent to which the fragments are firmly anchored by scar tissue, and partly on the nearness of the fracture to the ankle If weight-bearing is interfered with the bone should be grafted, which is readily done by an inlay graft from the tibia on the same side

Large Gaps in Bone after Removal of Tumours and Cysts

Spontaneous fractures due to the presence of a tumour or a cyst must be treated by operation whenever possible, for though they sometimes unite again spontaneously, they are very apt to refracture in the future, possibly on more than one occasion

The first stage in treatment then is radical removal of the cyst or tumour In the case of secondary carcinoma in a bone operation is rarely indicated as the patient's general debility or the primary growth overshadow the local bone condition Even without operation quite a number of these case unite spontaneously when treated like any ordinary fracture Naturally they tend to refracture, or else some other bone gives way next time

The innocent tumours which are amenable to removal usually leave a large deficiency in the bone, or at best an egg-shell cavity, which will not stand normal strains, so that a grafting operation is necessary Such a cavity can be filled with chip grafts from some vascular bone like the iliac crest Such chips are not good when surrounded by soft parts, as they are apt to become embedded in a mass of fibrous tissue, which does not make the shaft of a bone firm, but they do well when implanted in a rigid cavity If no shell remains after removal of the tumour, then one or more heavy grafts must be used to bridge the gap

It has been impossible here to give more than the merest outline sketch of such a complex subject as the treatment of ununited fractures

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Special Articles.

ON THE NATURE OF THE PARENT SUBSTANCE OF VITAMIN D.

By O. Rosenheim and T A Webster
(From the National Institute for Medical Research, London)

In The Lancet of May 16th, 1925, we gave a short account of work we had carried out showing that cholesterol, having the characteristics then known of the " chemically pure " substance, was rendered antirachitic by exposure to ultra-violet light[1] This fact was also discovered independently and at about the same time by the American observers Steenbock and Black,[2] and Hess, Weinstock, and Helman[3]

Although this discovery has since been confirmed and accepted by numerous investigators in many countries, and has found practical application for the cure of rickets in children, we were able to show recently[4] that cholesterol when purified still further by a chemical method had lost the property of becoming antirachitic by irradiation

Further Work on Cholesterol Derivatives

The considerations which led us to this result were the outcome of work undertaken for the purpose of isolating the active substance and of determining the nature of the molecular groupings essential for the successful activation of cholesterol[5] We succeeded in obtaining from irradiated cholesterol, by the use of digitonin, a substance which was intensely active, but were unable to convert more than about 1/10 per cent of the cholesterol into this active substance The investigation of a series of suitably selected derivatives of cholesterol led us to the conclusion that, unless both the unsaturated linkage and the hydroxyl group of the cholesterol molecule were intact, the substance could not be activated In this part of the investigation the fact that the esters of cholesterol could be rendered antirachitic presented a difficulty in accepting the above conclusion unreservedly

In continuation of this work, carried out partly in collaboration with Prof Windaus (Gottingen) and published elsewhere,[6] we were able to offer a solution for these difficulties, and to prove conclusively that cholesterol purified by way of the dibromide cannot be activated by ultra-violet light, and no longer possesses the absorption spectrum in the ultra-violet region which had been considered characteristic for cholesterol[7, 8]

These facts threw new light on the photo-chemical formation of vitamin D It became evident that the precursor of vitamin D is not cholesterol itself, but a substance associated with cholesterol as obtained from all natural sources We have since extended these observations to the phytosterols, and have found that when these are purified by way of the bromides they also yield no vitamin to irradiation, whereas all vegetable oils, and the sterols obtained therefrom and not so purified, readily acquire antirachitic properties under the action of ultra-violet rays

These observations suggest that the provitamin (we propose to use this convenient term, suggested by Prof Windaus, for the parent substance of vitamin D) is destroyed by bromine, and we have further found that it is equally destroyed by oxidation—e g, by treating an acetone solution of cholesterol with potassium permanganate Treatment with blood charcoal also frees ordinary cholesterol from the provitamin, but whether this is due to oxidation or adsorption has not yet been established

Whilst these results afforded no means for the isolation or even concentration of the provitamin, naturales. The lowest part of the ileum was severed transversely, the rectum was thoroughly mobilised and cut transversely some 5 cm. above the anus, and the proximal end of the ileum was pulled through the rectum and fixed outside on the anus. At a second operation five months later the entire colon—ascending, transverse, and descending—was extirpated, together with the peripheral part of the ileum, and at the same time the artificial anus was closed by a plastic operation. The patient made an excellent recovery after both operations. The lowest part of the ileum, which had been pulled through the rectum sloughed away, so that the patient now possessed a few centimetres of his former colonic intestinal canal—viz., the lowest part of the rectum. His motions were at first very frequent, watery, and copious. Now they have regained the normal consistency; they are passed 6–8 times in 24 hours, and the sphincter is completely continent and acting normally. The extirpated colon was demonstrated. It is completely obliterated and very much shrunken, its walls are stiffened, and the lumen is filled with scar tissue. Up till now no case has been recorded in which such an extensive removal has been successful.

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For the last 18 months Dr. Doppler has been experimenting on suitable cases with the effects of painting the spermatic (or ovarian) artery with a 7 per cent. aqueous solution of carbolic acid. He has found that this produces marked hyperæmia of the testicle (or ovary) with enlargement of the gland. In cases in which there has been hypofunction the secretion of the hormones is decidedly increased and Dr. Doppler notes a remarkable improvement of appetite some 10 to 14 days after the painting. The nervous symptoms, he says, soon improve; the appearance of the individual becomes better, and the basal metabolic rate, which is generally lowered in hypofunction of the sexual glands, returns to normal. The physical and psychic activity of the patient is markedly increased. Dr. Doppler recently showed a series of patients (he has so far operated on 160) in whom the changes thus produced are very obvious. He explained that his method is much simpler than vasectomy or vasoligature and though it is useless in cases of psychic impotence it should be tried for organic impotence before other and more drastic measures.

MEDICINE AND THE LAW

Operation without Patient's Consent

To what extent is a surgeon justified in performing an operation to which the patient has not consented? This was the issue in a recent action at the Liverpool Assizes, a case reported in some detail in our news columns. The verdict went in favour of the defendant surgeon who maintained that he had operated to save life. The jury added a rider to the effect that operations should not be performed without the patient's consent—a general proposition to which all will assent. The legal position has two aspects, the civil and the criminal. Prima facie the performance of a serious surgical operation means the infliction of bodily harm, but it is saved from being a crime because of the patient's actual or tacit consent. Stephen's "Digest of the Criminal Law" has stated in the past very sensibly that any person may for surgical purposes connected with the preservation of life or health consent to the infliction of any bodily injury upon himself or on any child to whom he stands *in loco parentis* and who is too young to exercise reasonable discretion. The injury inflicted must be reasonably within the limits of the consent given; its risks must be explained or understood; and the operation must be performed with proper care or skill; otherwise the surgeon will be civilly or criminally liable. In the recent edition of 1926 the Digest states that if a person is incapable of giving consent it is not a crime to operate and inflict bodily harm without his consent and in spite of his resistance. Three illustrations of this proposition are given. In the first, if A is rendered insensible by an accident which makes it necessary to amputate one of his limbs before he recovers his senses, the amputation without his consent is not an offence. Secondly, if the accident makes him mad, the amputation, in spite of his resistance, is no offence. Thirdly, if B is drowning and insensible and A, to save his life, pulls B out of the water with a hook which injures him, this again is no offence. Against this passage the learned editors of the Digest retain the following footnote: "I know of no authority for these propositions but I apprehend they require none; the existence of surgery as a profession assumes their truth."

The Digest was primarily concerned with the criminal aspect; Stephen was explaining how far consent could be a defence to a prosecution for inflicting grievous bodily harm. The civil aspect of the matter—namely, the possible remedy of the patient in the form of obtaining damages where an operation has been performed without his or her consent—was dealt with in the case of Beatty v. Cullingworth, tried by Mr. Justice Hawkins in 1896, not mentioned in the law reports but noted in the Medico-Legal Society's *Transactions* in 1909 and cited in Halsbury's "Laws of England." It was the case of an operation for ovarian cyst. The patient told the surgeon beforehand that she would not consent to the removal of both ovaries as she was going to be married. "If you find both ovaries diseased," she said, "you must remove neither." The surgeon replied, "You may be sure I shall not remove anything I can help." When operating the surgeon found the right ovary cystic and removed it. He also found the left ovary to be in an early stage of the same process and he formed the opinion that it was necessary to remove it in order to save the patient's life. He did remove it and the patient afterwards brought an action for negligence. Hawkins addressed the jury as follows: "If a medical man with a desire to do his best for the patient, undertakes an operation, I should think it is a humane thing for him to do everything in his power to remove the mischief, provided that he has no definite instruction not to operate. There was here no question as to the propriety of the operation and the defendant always told the plaintiff she must give him a free hand. If you think tacit consent was given you must find for the defendant." The jury did so. It was, of course, a question of fact for the jury whether there was an express or tacit consent. The patient's previous stipulation quoted above is not quite consonant with the judge's statement that she had given the surgeon a free hand. Sir Frederick Pollock in a well-known text-book remarks guardedly that, "in cases of necessity when an operation is necessary and the patient is unconscious and unable to consent, and no person entitled to consent on his behalf is available the operation is probably justified."

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On Jan 29th Sir John Gilmour, Bt, Secretary of State for Scotland, opened the new Children's Hospital at Leith which has been erected as a memorial to the dead of the Leith Territorial Regiment, the 7th Royal Scots The earlier part of the present building was built over 60 years ago by the late Mr Simpson, architect to the former Leith Corporation The later section was built by his son, George Simpson,, who succeeded his father as corporation architect and built the fine hospital at East Pilton for infectious diseases, probably the best of its size at that date Mr Simpson has now added to his reputation by this third hospital He has made a fine use of the site, and the area round the hospital is unrecognisable by those who knew this part of Leith when it was covered by disgraceful slums The hospital itself is only large enough for some 50 beds, but it has also a first class out-patient department The two operating theatres would be hard to surpass for lighting and convenience, the fittings and furnishings are in the latest style, and the wards are commodious and luxuriously fitted This is a War memorial of the best type

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UNUSUAL interest has been aroused by the announcement of Prof. Ludwig Haberlandt, of the University of Innsbruck, that he has succeeded in rendering white mice and rats temporarily sterile by the injection of extracts prepared from the placenta and ovaries of pregnant mice He claims that later he was able to secure sterility in these animals for a period of six or seven weeks by feeding them on such extracts Prof Haberlandt based his experiments on the fact that the formation and expulsion of ova ceases during pregnancy He explained this
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M F FORRESTER-BROWN, M S, M D. Lond,
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Correspondence.

"Audi alteram partem"

THE PAPWORTH COLONY AND SIR CLIFFORD ALLBUTT

To the Editor of THE LANCET

SIR,—A small committee of the friends and admirers of the late Prof Sir Clifford Allbutt has decided to erect to his memory at Papworth two cottages with which his name will be permanently associated, for men disabled by tuberculosis The men will be chosen from among those who could not under ordinary conditions support themselves and their families Sir Clifford Allbutt as President of Papworth Colony from the beginning was always deeply interested in the work there, and it is felt that there could be for him no more fitting memorial

A certain amount of money has already been promised, and we shall be very grateful if those who would like their names added to this memorial to a great man will kindly send donations, however small, to Mrs Marcus Dimsdale Papworth Hall Cambridge It is hoped that the cottages will be opened some time during the summer by H R H the Prince of Wales, and that as many subscribers as possible will endeavour to be present

We are, Sir, yours faithfully,
FREDERICK MILNER
HUMPHRY ROLLESTON
ARCHIBALD E GARROD
J K FOWLER
ROBERT JONES
P HORTON-SMITH HARTLEY.
HUGH K ANDERSON
H J GAUVAIN.

Papworth Hall, Cambridge, Jan. 30th, 1927.

ASYMMETRY OF THE JAWS

To the Editor of THE LANCET

SIR,—Hitherto I have been unable to find in any of the ordinary text-books of medicine or surgery reference to simple arthritic or synovitic conditions affecting the temporomandibular joint It does not appear to be commonly affected by the diseases which cause so much trouble in other joints of the body—perhaps fortunately so, since it is constantly and necessarily used in biting mastication and articulation My attention has been drawn to this subject by virtue of a recent personal attack of acute inflammation of the temporomandibular joint of the right side The attack was unlike anything previously experienced and though acutely painful for a time, seemed not to be serious for it cleared up entirely in three or four days with external application of ung methyl salicyl co (B P C) For reasons which follow, however, I have thought the condition would bear description

In the first place, as with so many similar affections, no likely causal factor was apparent The attack commenced with an initial grating sensation experienced only on opening the mouth very widely, more particularly when lowering the jaw was combined with protraction The affection remained in this simple state for about a fortnight without appearing to get either worse or better At the end of this time the condition suddenly became more acute and the inflammation more extensive The grating sensation was now felt during the ordinary movements of the joint being, of course, much more marked during the movements already alluded to In addition to the grating there was now a fair degree of pain such that the mouth was unable to be fully opened without a sense of impending dislocation accompanied by considerable pain. The grating, too, was of a peculiar type being *heard* rather than felt It seemed as if the mandibular condyle were endeavouring to slip-over a roughened *eminentia articularis* This was especially so during attempts at protraction of the jaw. After a few days of treatment the inflammation subsided and has left no damage as far as sensations enable one to judge

To me the condition has been most interesting on account of its unilateral position The question naturally arises as to why the process should affect the joint of one side only Probably the simplest cause would be a draught or some similar influence playing on the affected side This explanation seems feeble and insufficient to account for all the facts, especially considering the rather subacute commencement of the process, which is *certainly not* suggestive of cold or exposure such as is productive of one form of facial nerve paralysis It rather seems to me that the explanation is to be sought for in the anatomical asymmetry of the temporomandibular joint Most likely the side affected is the joint used more than its fellow and hence open to more damage In support of this is the fact that during the attack the mandibular condyle could be felt to make a greater excursion on the affected than on the normal side. When both joints are normal the excursion of the condyles is not appreciated, the movement of joint surfaces being an action that is not brought into consciousness except in a vague or general way. In the inflamed state the movement is only too well appreciated

My inference is that probably the articular surfaces of the right temporomandibular joint are more extensive than the left, possibly from greater usage in mastication or as a heritable quality, In brief, is it not possible that man is right-jawed as well as right-handed ?

The anthropologists do not seem to have paid much attention to measurements of the condyles of the jaw Asymmetry is a well-recognised phenomenon in many head structures especially the parts of the face, the nasal septum, and the bones of the skull A good account of these is given by R. Martin (Lehrbuch der Anthropologie, pp 341, 638) but he does not mention the condyle of the mandible in his catalogue I have taken the opportunity of measuring the width and anteroposterior diameter of the condyles of several mandibles of both sexes, and find that on one side, usually the right the condyle is both wider from side to side and broader from before backwards by a measurement of the order of 1 mm in the former case and slightly less in the latter The condyles also show differences in shape and outline on the two sides

The general head asymmetry is therefore also applicable to the temporomandibular joint and hence probably also to the soft parts in relation thereto This asymmetry may be hereditary or acquired If acquired it is probably due in part to the effects of masticating more on one side than the other, a feature common enough when carious teeth are present on the opposite side of the jaws This factor alone, however, will not account for condylar asymmetry because alternations are bound to occur in respect to the side used chiefly in mastication in the same individual from time to time Heredity is probably the main factor as in the asymmetries of other parts

I am Sir yours faithfully,
W C OSMAN HILL, M D.

Anatomy Department University of Birmingham
Jan 19th 1927

FAT AND TUBERCLE

To the Editor of THE LANCET.

SIR,—I read with great interest Dr W B Vaile's article on Pulmonary Tuberculosis in your issue of Jan 8th I have myself never come across a case of consumption whether in the early or late stages in which the patient did not say " Oh ! I can t eat fats " or the parents (guardians) did not inform the doctor emphatically ' We could nt get the patient to take fats "

I am, Sir, yours faithfully
R MARTIN, L R C P. & S Edin.

Banbridge, Co. Down, Jan 28th, 1927.

be exercised in future in the assembling of the apparatus, and that no further accident of the kind would be allowed to occur.

We have had occasion before to comment on such a catastrophe, and to inquire what would be a safeguard against its occurrence ? The first and best is to test the apparatus each time before use But since it may be impossible to eliminate completely the human element of risk, a final safeguard is to employ fool-proof forms of inhaler, such as those associated with the names of Hewitt, Buxton, and Shipway

THE REGISTRATION OF DEATHS.

A Regulation, dated Dec 31st, 1926, has been made by the Registrar-General, imposing the following requirements upon registrars of births and deaths —

> Where the contents of the medical certificate show that the deceased was not seen after death by the certifying practitioner, and was not seen alive by him within 14 days of the date of death, the death should be reported to the coroner by the registrar

To this new regulation the following instruction is appended —

> In the case of all medical certificates given on the new official form bearing serial numbers with the prefix "Y," the certificate will clearly show whether the deceased was seen after death or not In the case of a certificate given on the forms previously issued with the prefix "X," or any older form, the omission of the words "as I am informed" from the blank in the relevant portion of the form is to be taken as meaning that the practitioner saw the deceased after death and is thus prepared to certify from his own knowledge that death took place But if the registrar has any reason to suspect or believe that the omission was not deliberate, but was due to inadvertence, he should make inquiry of the practitioner in any case where the deceased was not seen alive within 14 days of death

The Secretary of State has recently called the attention of coroners to this regulation in a circular letter which contains the following observations —

> The regulation is based upon the view that responsibility ought not to be accepted by the registrar for registering the fact and cause of a death on the evidence of a certificate given in the circumstances indicated in the regulations, unless he has previously given the coroner an opportunity, at any rate, of investigation or inquiry
>
> When a certificate of death is referred to the coroner under the new regulation, two points may arise (*a*) what proof is there of the *fact* of death—i e , what proof is there that a *body* is lying within the coroner's jurisdiction ? , (*b*) is the *cause* of death sufficiently established or is investigation by the coroner required ?

The first point can be cleared up in various ways, according to circumstances In some cases the coroner may consider it desirable or necessary to ask the doctor why he has not seen the body, and to request him to see it in order that the doctor may amend his certificate in that respect If it is impracticable for the original certifier to see the body, the coroner, in parts of the country where the schedule made by the local authority enables payment for such a service, may upon sufficient occasion ask another practitioner to see the body and report to the coroner as to the fact of death and, if necessary, also as to the cause of death In many cases it may be found upon view by the coroner's officer, in the course of his inquiries that the fact of death is painfully obvious

As regards the second point, the necessity for investigation, it is for the coroner to decide whether the circumstances are such as to require investigation by him, having regard to the duties imposed upon him by law The mere reference of a certificate to the coroner by the registrar does not of itself set up an obligation to investigate Such reference is only one of many means by which a coroner may have his attention drawn to a death and to the possibility that action by him may be necessary It is open to a coroner to decide at once to inform the registrar that in his opinion no inquest is necessary, or to institute such inquiries and obtain such information as he may think requisite before deciding whether to inform the registrar as above or whether to hold an inquest

LISTER CENTENARY.

A committee consisting of representatives of the Royal Society, the Royal Colleges of Physicians and Surgeons, the Royal Society of Medicine, the British Medical Association, the universities and other institutions interested, has been formed to organise a celebration in London of the centenary of the birth of Lord Lister, which falls on April 5th next Representatives of learned societies, universities, and medical bodies in Great Britain and delegates from the dominions and principal foreign countries will be present The delegates will be received by H M the King at Buckingham Palace on April 4th The programme, so far arranged, is as follows —

> April 5th Reception and short addresses by some of the delegates in the large hall of the British Medical Association. Conversazione at the Royal College of Surgeons of England Dinner given by the Merchant Taylors Company, of which Lord Lister was a member
>
> April 6th Memorial service in Westminster Abbey, address by the Bishop of Birmingham Discourses in the Robert Barnes Hall of the Royal Society of Medicine, on Lister as Physiologist, Pathologist, and Surgeon, by Sir Charles Sherrington, Prof W Bulloch, and Sir Berkeley Moynihan Conversazione at the rooms of the Royal Society

The Executive Committee consists of Sir James Berry, Sir John Rose Bradford (chairman), Sir John Bland-Sutton, Prof William Bulloch, Sir Watson Cheyne, Dr H H Dale, Mr R G Hogarth, Sir Berkeley Moynihan, Sir Humphry Rolleston, Sir Ernest Rutherford, Sir Charles Sherrington, Sir Harold Stiles, Sir StClair Thomson, Mr W Trotter, Mr Logan Turner, and Prof A Young

A public meeting in further celebration of the centenary is to be held in the McEwan Hall, Edinburgh, at 8 P M., on Wednesday, July 20th, coinciding with the British Medical Association's annual meeting Earl Balfour will preside, and short addresses will be delivered by Sir William Watson Cheyne, Prof Tuffier, Prof Harvey Cushing, and Dr James Stewart A museum of Lister relics will be on view in the Upper Library of the Old University

A Lister memorial volume has been prepared, edited by Dr Logan Turner, which contains a variety of contributions, including a sketch of Lord Lister's life, given by his former house surgeon, Sir George Beatson, and a series of short personal reminiscences by many old friends from all parts of the world Two of Lister's scientific addresses and a series of letters of general interest are to be incorporated in the book

The sum of £25 and a gold medal will be awarded as a prize for the best essay submitted on the subject "The Influence of Lister on Surgery," by students and graduates of not more than one year's standing of any medical school in the British Empire

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New Poor-law Hospital in Shropshire —Last week Lady Berwick opened at Berrington, near Shrewsbury, a hospital of 140 beds established by the Atcham Board of Guardians in a former workhouse The buildings have been remodelled and equipped at a cost of about £15,000 and will be used for private paying patients as well as for Poor-law cases The alterations provide for eventual extension to 300 beds

Orthopædics in Warwickshire —It is proposed to establish in Warwickshire a scheme for the treatment of crippled children At present orthopædic treatment is provided by the Coventry and District Crippled Children's Guild and the Nuneaton clinic, but only about a quarter of the county is thus served, though much work of this kind is being carried out voluntarily at St Cross Hospital, Rugby It is proposed to establish clinics at Rugby, Warwick, Stratford-on-Avon, Kineton, and perhaps elsewhere There are 350 crippled children of school age in the county area in the legs, especially the calves, were an almost constant symptom, and associated with considerable tenderness on pressure of the calf muscles. The knee-jerks were diminished in some cases and increased in others."

Dr. Stannus further states in his letter, "observations on a large number of cases have, however, proved to me that the sun's radiations are the only factor in causing a typical distribution of the rash": he then inadvertently disproves the above by stating in the same letter "The affection of the scrotal skin, which was, I think, first pointed out by myself, may result from heat and moisture." I would inquire why, if the scrotal condition is the result of heat and moisture, are the axillæ, which are both moister and hotter, exempt from the eruption?

I have noticed that friction produced by the movement of a loin cloth over the great trochanters and over the prominence of the buttocks, will sometimes cause the appearance in that area of the typical dermatitis in a pellagrous subject. Further, I have knowledge of at least one case, a patient who had been confined to bed in hospital for eight weeks and yet developed a very well-marked pellagrous dermatitis although she had never come in contact with direct sunlight during that period. In my series of cases the skin was usually thickened, rough, coarse and scaly, although each individual had a good wash at least once daily.

I mentioned "slight œdema" occurring in pellagra, it is not, however, a true œdema, for it does not pit on pressure. It is really more of a puffiness of a solid nature, and occurs in patients who have had several attacks of the disease.

The rhagades like soreness at the angles of the mouth, mentioned by Dr. Stannus was present in a considerable number of cases but also occurred in other patients who had no signs of pellagra, and who never, to my knowledge developed the disease.

May I repeat my observations suggested to me that "in pellagra there is a deficiency in thyroid secretion, a neuritis of certain nerves in preference to others and skin lesions corresponding to the distribution of those nerves."

In conclusion, I thank Dr. Stannus for his kindly criticism and I trust my explanation will be acceptable to him.—I am, Sir, yours faithfully,

HORACE M. SHELLEY.

Addison Court-gardens, Kensington, W.,
Jan. 22nd, 1927.

SICKNESS BENEFIT AND UNEMPLOYMENT

To the Editor of THE LANCET.

SIR,—The leading article entitled Health Insurance Funds in your issue of Jan. 22nd comments on the large relative increase in sickness benefit coincident with industrial strife and unemployment. In this connexion the following case occurred at this institution this morning, and is illuminating. A factory worker applying for employment as a domestic was asked when she last saw her panel doctor. The following dialogue occurred:—

Applicant.—This week.

M.O.—What was the matter with you?

Applicant.—Nothing, but I was out of work.

M.O.—But why go to your doctor?

Applicant.—Because it was quicker to get sickness benefit than unemployment benefit, and not so much trouble.

M.O.—But did your doctor know that was your reason for going?

Applicant.—Oh well, you see he always does that for me when I am out of work, and says I am anæmic.

I am, Sir, yours faithfully,

WILLIAM C. FOWLER, M.D.

Pinewood Sanatorium, Wokingham, Berks,
Jan. 26th, 1927.

*** If the applicant was telling the truth she was recording a situation which is almost the despair of the Ministry of Health.—ED. L.

PULMONARY EMBOLISM FOLLOWING OPERATION.

To the Editor of THE LANCET.

SIR,—Dr. W. A. Lister's interesting statistical investigation into the causation of post-operative pulmonary embolism in your issue of Jan. 15th draws attention once more to a subject which has been freely discussed and written of during the last few years. So much indeed has post-operative pulmonary embolism been in the limelight, that there has been a tendency on the part of the profession to give but scant attention to the cases of pulmonary infarction and embolism which occur independently of operation. It has been my experience, ever since influenza "came back" in 1918, to meet with these cases in increasing numbers, so that pulmonary infarction is a common phenomenon in my practice. The infarctions take place in healthy people following attacks of influenza generally during convalescence from an *influenzal tonsillitis*. Other varieties of embolism are also commonly observed, but I am concerned at present with the pulmonary. It is my belief that the great majority of cases of influenzal pleurisy and pneumonia, so called, are really examples of pulmonary infarction. Often the cases are not diagnosed, but in many of the cases one observes the characteristic sticky plum-coloured sputum: it is interesting to note that a good number of these cases are mistaken for phthisis. Further, it is probable that many of the mysterious sudden deaths after influenza, usually ascribed to heart failure, are really due to massive pulmonary embolism. The influenzal origin of the cases is proved by the fact that one sees the cases in rushes during the influenza epidemics and waves, after having gone for months without seeing anything suggestive of a case of embolism. Moreover, at the same time as one is seeing these cases of pulmonary infarction one is seeing cases of embolism in other organs. In other words at certain seasons embolism becomes very prevalent. The natural conclusion can only be that influenza is an important factor in the causation of embolism. In what way is this brought about? Surely by an increased coagulability of the blood. That the blood is profoundly affected is shown by the fact that several of my cases of pulmonary infarction have shown well-marked jaundice, most probably due to a hæmolytic streptococcus associated with the influenzal attack.

In what way do the above facts throw light on the cases of pulmonary infarction that occur after operation? Personally, I can count the number of post-operative cases on my fingers, but I can say that whenever I see a case of post-operative pulmonary infarction at the hospital to which I am attached, I see outside the hospital at the same time similar cases of infarction in patients on whom no operation has been performed: these patients are suffering from influenza.

To give an example of what I mean. In the 19 days from August 30th to Sept. 17th, 1925, when influenza was very prevalent in my practice, I saw (1) a fatal case of pulmonary embolism after childbirth; (2) a case of pulmonary infarction with blood sputa after an operation for hernia; (3) a cerebral embolism with ensuing cortical hemiplegia; and (4) a cerebral embolism fatal in 12 hours. I had seen nothing like a case of embolism since the preceding May. In this month influenza was epidemic, and I saw three cases of embolism. I have noted the same thing many times. Again I remember well a fatal case of pulmonary embolism (verified by autopsy) in a patient the day before he was to have been operated on for chronic appendicitis. If the fatal event had been delayed another day the operation would have been held accountable. Do not the above facts suggest that the operative cases are in some way related to the non-operative cases? I am certain that the importance of influenza in this respect has been overlooked. At a recent discussion at the

BLOOD PRESSURE IN INFLUENZA

To the Editor of THE LANCET.

SIR,—Referring to Dr Shore's letter on the need for keeping convalescents from influenza in bed, and for the administration of tonics until the low systolic blood pressure has risen, I should like to point out that a condition of chronic low blood pressure is far from uncommon, and occurs in people in whom it would not be expected I have a dozen patients in my practice whose systolic blood pressure has to my knowledge never risen above 105 mm Hg for two years If such a patient were to contract influenza he might be condemned to a decidedly long convalescence Very little seems to be known about this condition of chronic hypopiesis It seems to be more common in males than females, 10 males and 2 females in my cases, and their aged range from 30 years to 80 years All of them are active and earn their own livings, including the man of 80, who is in full work as a surveyor Four of them are farmers and walk many miles a day They all live hygienic lives and six of them have always been non-smokers

The symptoms most commonly complained of are (1) giddiness when assuming the erect posture, (2) lassitude and a vague feeling of being out of sorts They sweat a good deal during physical exertion These cases are often slightly hypochondriacal, they are quiet and reserved in temperament and not given to enthusiasm They exhibit an astonishing tolerance of belladonna, including the patient of 80 years I have not found any decided benefit with the usual tonic-treatment and hygienic measures, such as cold or tepid baths and liberal diet Daily injections of pituitrin and adrenal extract were tried, but apart from the immediate rise of blood pressure for an hour or so no benefit resulted

I have recently treated eight of these cases with "coramine" (a 25 per cent solution of pyridine-β-carbonic acid diethylamide) A dose of 25 minims was given twice a day by the mouth and continued for 14 days In every case there was a great improvement in the patients' sense of well-being and energy The giddiness disappeared In all cases but one the systolic blood pressure rose and was never less than 120 mm Hg, and in some cases the blood pressure rose to 130 and 140 mm Hg It was noted that very little or no improvement took place during the first week of administration in most of the cases In regard to the permanence of the raised blood pressure after the "coramine" has been discontinued these chronic cases of long standing appear gradually to revert to their previous state in the course of four or five weeks

I have not yet used "coramine" for the hypopiesis resulting from influenza

I am, Sir, yours faithfully,
P D H CHAPMAN, M B, B Ch Camb
Bridlington Jan 31st, 1927

NEW NAMES FOR OLD DISEASES.

To the Editor of THE LANCET

SIR,—In the discussion following Sir Humphry Rolleston's address on Changes in the Clinical Aspects of Diseases (THE LANCET, Jan 15th) I alluded to a possible source of confusion arising from occasional change in name of diseases, and I hope you will allow me to mention here one or two other examples of such a change in names The rare disease in children to which I alluded was named "erythrœdema" in 1914 by Dr H Swift, of Adelaide, Australia An objection to the name was that there was no obvious œdema, though the extremities might appear turgid. Recently, however the disease has been called by a still more unsuitable name, "acrodynia"[1] The latter name had been previously bestowed on the great epidemic disease (hardly likely to be identical) which attacked about 40,000 persons in Paris during less than a single year (1827-28) The names of well-known diseases such as measles and scarlet fever can hardly be altered, but uncommon and relatively little-known diseases can be altered by any author who writes on them A recent example is that of tuberous sclerosis of the brain, often associated with Pringle's multiple telangiectatic type of adenoma sebaceum of the face Whenever the latter was present in the subjects of epilepsy or mental deficiency the presence of tuberous sclerosis of the brain was suspected, but could hardly be proved without a post-mortem examination Dr E B Sherlock,[2] not contented with these names, coined a new one, "epiloia," which he regarded as suitable, being "short, unmeaning, distinctive, and capable of forming an adjective" Thus, at recent meetings of the Royal Society of Medicine[3] cases have been shown under the heading, "epiloia" It seems inconvenient, to say the least, that, when careful studies of the subject have been published in various countries under the heading, Tuberous (or Tuberose) Sclerosis, the latter name should be arbitrarily displaced in favour of "epiloia" recommended by its introducer as being "meaningless" In 1920, when Sir Arthur Keith proposed the name "diaphysial aclasis" for the disorder of growth generally known as "multiple exostoses," there was at the back of his suggestion at least an interesting scientific theory of causation Moreover, it is possible that the developmental disorder in question may occasionaly occur without the formation of actual exostoses[4] But there is no excuse of the kind for "epiloia"

I am, Sir, yours faithfully,
F PARKES WEBER
London, W, Jan. 18th, 1927

PELLAGRA IN NYASALAND

To the Editor of THE LANCET

SIR,—I beg your permission to reply to criticisms made by Dr Hugh S Stannus in reference to my article on Pellagra in Nyasaland which appeared in your issue of Jan 8th I read the first communication Dr Stannus made to the Royal Society of Tropical Medicine and Hygiene on Pellagra in Nyasaland with very great pleasure and I have the fullest admiration for the accurate description of the disease that he gave on that occasion I did not read his second communication on the same subject until quite recently, and I was unaware that cases of the disease had been discovered in members of the general population previous to my own observations However, my work confirms his original obervations on that point

Dr Stannus seems to imply in his letter that I claim to be the first observer to formulate the theory that the pathological lesions in pellagra are due to a toxin, whereas I merely try to prove by my observations that the toxin acts upon various systems in the body and so produces the characteristic features of the condition I am convinced that one of the chief actions of the toxin is to interfere with the correct functioning of the thyroid gland, hence my comparison between certain signs in pellagra and other signs in myxœdema Further, the above theory has received substantial support from post-mortem evidence the source of which I stated in my article My observations are the result of clinical investigation, and whatever the pathological changes in the nervous system may be, there are signs of a peripheral neuritis in the early stages of the condition, to quote Dr Stannus, "pins and needles, and burning pains in the soles of the feet, especially along the outer margin and in the pulps of the toes, pains

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[1] The heading of W Weston's article on the subject in Abt's Pediatrics, ii, 986

[2] The Feeble-Minded, London, 1911 p 242

[3] Section for the Study of Disease in Children, Oct 22nd, 1926 and Section of Psychiatry, Jan 11th 1927

[4] F P Weber A Developmental Deformity of the Right Forearm similar to that sometimes met with in cases of Multiple Exostoses (Diaphysial Aclasis of Keith), Proc Roy Soc Med, Clinical Section, 1925, xviii, 25

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg -Comdr L O Hunt is placed on the Retd List at his own request.

ROYAL NAVAL MEDICAL RESERVE

Surg Sub-Lt H O'Connor to be Surg

ROYAL ARMY MEDICAL CORPS

Majs retiring on retd pay F H M Chapman, J L Wood (and is granted the rank of Lt -Col), J H Gurley, and H W Farebrother (and is granted the rank of Lt -Col)

Capt M St. C Hamilton, half-pay list, retires on account of ill-health, receiving a gratuity

ARMY RESERVE OF OFFICERS

Col A. J MacDougall, late R A.M C , having attained the age limit of liability to recall, ceases to belong to the Res of Off

Maj F A Stephens, having attained the age limit of liability to recall, ceases to belong to the Res of Off

TERRITORIAL ARMY

Col G H Edington, having attained the age limit, is ret and retains his rank with permission to wear the prescribed uniform

Lt Col H G L Haynes, from the T A. Res of Off , to be Capt

A H Whyte to be Lt

ROYAL AIR FORCE

The undermentioned Flying Officers are promoted to the rank of Flight Lt C G J Nicolls and B Pollard

The undermentioned are granted temporary commissions in the ranks stated on attachment to the R A F Flight Lt E Alston (Temp Capt , General List, Army, Dental Surgeon) , Flying Officer H P Sutcliffe (Temp Lt , General List, Army, Dental Surgeon)

Flight Lt H J Higgins (Capt , Army Dental Corps) relinquishes his temporary commission on return to Army duty

Squadron Leader J G Worsley (Maj , Army Dental Corps) relinquishes his temporary commission on resignation of his Army commission

INDIAN MEDICAL SERVICE

Lt -Col G Tate to be Col

Capts to be Majs Bager Zainulabiedin Shah, A J D'Souza, R H Malone, Vinayak Narayan Agate, Jehangir Pestonjee Canteenwalla, Lonji Shahpurji Modi, Satyendra Nath Mukerji, B C Ashton, Mani Shankar, Kaikhusru Byramji Bharucha Erach Ruttanji Daboo, Hira Singh Anand, Bantwal Ganapathi Mallya, Burjorji Hormasji Kamakaka

Temp Lts to be Temp Capts Manoranjan Sen Gupta, Dattatraya Gangadhar Karandikar, Hemandas Pribhdas Manghirmalani, J P Arland, Mohindra Singh, Achanvittil Krishna Manon, Pukukotah Sreenivasachari Varadarajan, Diwan Chand Datta Muthuswami Nata Rajan, Tonsa Panduranga Rao, and Muneebud Din Minhas

Shankar Karunakar Menon Tarachand Dayasing Shahani, Assa Singh, and Mohar Chandra to be Temp Lts

The King has approved the relinquishment of his temporary commission by Capt S Christian (who is permitted to retain the rank of Capt)

The King has approved the grant of a temporary commission to Shankar Karunakar Menon, Tarachand Dayasing Shahani, and Assa Singh

DEATHS IN THE SERVICES

Surg Comdr Alexander Gordon Andrews, R N (retd) who died on Jan 16th entered the Royal Navy as a surgeon in 1881 and in the following year was appointed to H M S *Monarch* Later he served in the cruiser *Pylades* in Australia, and was staff surgeon of the *Terrible* during the South African War and the Boxer rising He was present with the naval brigade at Tientsin In 1903 he was appointed senior medical officer of the *St Vincent*—boys' training ship at Portsmouth—and in 1904 took charge of the Royal Naval Hospital at Yarmouth From 1909 he served in the battleship *Superb*, and from 1911 as fleet surgeon of the Dockyard, Malta In 1914 he joined the battleship *Prince George* and in the following year was appointed for special service at Chatham He retired in 1916

DENTAL WORK IN BIRMINGHAM —Last year at the Birmingham Dental Hospital there were nearly 36,000 operations A new department for dental bacteriology was opened during the year

Medical News.

UNIVERSITY OF CAMBRIDGE —At a recent Congregation the following degree was conferred —

M.B , B Ch —R T Mummery

ROYAL COLLEGE OF PHYSICIANS OF LONDON —An ordinary quarterly *Comitia* of the College was held on Jan 27th, Sir John Rose Bradford, the President, being in the chair The following candidates were admitted as members —

Ahmed Khalil Abdel-Khalik, William Arthur Bourne, Hugh Nash Bradbrooke, John Alexander Charles, George Coelho, Thomas Reginald Davies Charles Sydney Douglas Don, John Hartley Gibbens William Gunn, George Stiven Halley, John Reginald Brock Hern, Alexander Mills Kennedy, Robert Albert Edward Klaber, Ardeshir Jehangirshah Kohiyar Geoffrey Laurence Samuel Kohnstam, Robert Daniel Lawrence, Maurice Mitman, Edward Clark Noble, Robert James Valentine Pulvertaft William James Reid, Olive Rendel, Navroji Kharshedji Sahiar, Lewis Herbert Savin, Kenneth Shirley Smith, Kenneth Andrew Soutar Hilda North Stoessiger, Clara Dunbar Tingle, Robert Arthur Walsh, Robert Goege Ranyard West, Cecil Oswald Young

Dr W C Bosanquet, Dr J H Sequeira, Dr F Craven Moore, and Dr J A. Nixon were elected Councillors to take the places of Dr F J Poynton, Dr J H Abram, Dr T Wardrop Griffith, and Sir Walter Morley Fletcher —Sir Francis Champneys was re appointed a representative of the College on the Central Midwives Board —The resignation of Sir Humphry Rolleston of the post of representative of the College on the General Medical Council was received, and a vote of thanks was accorded to him Dr E Farquhar Buzzard was elected as his successor —Dr Stanley Barnes was appointed a representative of the College on the Court of Governors of the University of Birmingham in place of Dr A. F Voelcker, whose term of office expired on Dec 31st, 1926 —Dr J H Abram was reappointed a representative of the College on the Court of Governors of the University of Liverpool —The resignation of Sir William Hale-White of the post of representative of the College on the Central Council for District Nursing in London was received, and Dr A S Woodwark was elected in his place —The acceptance by Mr F H Maugham, K C , of the post of Senior Standing Counsel to the College was reported —The President announced that he has appointed Dr J F Gaskell to deliver the Bradshaw Lecture for 1927, and that the Council have appointed Dr F A E Crew of the Animal Breeding Research Department of Edinburgh University, to be Milroy Lecturer in 1928 —A communication was received from the Ministry of Health asking the College to nominate a representative to serve on an Advisory Committee of Clinical Experts to consider the details of the proposed alterations to be suggested by the British Government at the forthcoming Revision of the International List of Causes of Death, by the Health Section of the League of Nations at Geneva Dr Robert Hutchison was appointed Dr S Monckton Copeman was appointed to represent the College at the Congress of the Royal Sanitary Institute to be held at Hastings from July 11th to 16th, 1927 —The President, Sir John Rose Bradford, was elected as a delegate to the celebration of the Lister Centenary in April 1927 —A report was received from Sir John Broadbent, who represented the College at the celebration of the Centenary of Laennec in Paris in December, 1926

At the same meeting of the Comitia licences to practise were conferred upon 126 candidates (21 women and 105 men) who have passed the recent Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the by-laws of the College The following are the names and medical schools of the successful candidates —

W M Abdel Malek Birmingham G M Addison Cambridge and St Thomas's J C B Allen Sydney and Middlesex I S Alman Berlin and Middlesex H Archer Bristol F F Augsburger Lausanne M T Aung Guy's G C Babington St Thomas's, D H Belfrage Cambridge and St George's R N Bery and R V Bowles Univ Coll Winifred P Brinckman Bristol A H Bruce Guy's S M Burrows St Thomas's C P Campion Cambridge and Univ Coll Margaret E M Carter St Mary's B M Clark St Bart's H H Cohen London I Collin Russ Middlesex C L Cope Oxford and Univ Coll J H Couch Toronto Geraldine H Cowle Royal Free and Westminster R D Curran Cambridge and St George's C Davies Birmingham J Dean St Bart's Daphne W Dear King's Coll J H [illegible] Donelland Cambridge and St Bart's A O Dreosti St George's J Ellison Oxford and Leeds D K Evans Cardiff Enid C Evans St Andrew's and Westminster F S Evans and F M M Eyton Jones St Bart's A P Farmer and G M FitzGibbon St Thomas's A M Fleming Middlesex A B Follows Liverpool Elsie G M Ford Leeds D Gamsu Durham H G Garland Leeds

Royal Society of Medicine, very little attention seemed to be paid to Featherstone's[1] suggestion that colds and influenza played a great part in the production of post-operative pulmonary complications, though I am convinced he was nearer the mark than many of the other speakers

There is no doubt that there has been a great increase in the number of cases of *medical* pulmonary infarctions seen in practice, and Sir C Gordon-Watson has shown that at St Bart's Hospital, at least, there has been a relative increase in the *surgical* embolisms This is surely to be expected when influenza is so constantly with us It would certainly be rather wonderful if out of the thousands of patients undergoing operations daily none were suffering from the blood changes that must be present in a large proportion of the population at certain (influenzal) seasons To sum up, post-operative embolism must be, in certain cases at least, a coincidence which has nothing really to do with the operation It would have been extremely interesting if Dr Lister's investigation had shown whether the cases he analysed occurred most frequently at the dates of the well-marked influenza epidemics

What of the prevention of these cases? I now give potassium citrate as a routine to all my influenza cases With regard to the exercises that are advocated after operation, I would only state that my experience shows that it is the restless, excitable patient, rather than the placid contented individual, who is liable to embolism

One moral can be drawn—no operations but the most urgent should be performed during the influenza seasons —I am, Sir, yours faithfully,

Aberdare, Glam , Feb 1st, 1927 AMBROSE W. OWEN

IMMUNITY TO IMPLANTED TUMOURS.

To the Editor of THE LANCET

SIR,—I should like to endorse Dr Mottram's remarks in his letter in your last issue It has, of course, been known for many years that a limited amount of growth will take place in serum, but the majority of tissue culture workers have discarded this medium as the growths obtained by its employment are more of the nature of what Fischer has termed outwandering of cells rather than real growth In our experience, all strains of carcinoma and other epithelial tissues, whether grown in liquid or solid media, grow either as continuous sheets or in the form of long finger-shaped processes The cells described and figured by Dr T Lumsden we regard in our cultures as fibroblasts and cells derived from the stroma, these are frequently seen in cultures in which the true cancer cells are growing badly So far as I am aware there is no evidence that inoculation of such outwandering cells *only*, free from the original fragment into mice, ever gives rise to tumour formation

Inoculation of the sheet type growth from, say, carcinoma 63 into mice produces typical tumours in the usual way I think Dr Lumsden's figures emphasise the necessity of working with pure cultures in this type of experiment

I am, Sir, yours faithfully,
A H DREW

Stroud Laboratories, Mill Hill, N W , Feb 1st, 1927

BAY MOUNT, PAIGNTON

To the Editor of THE LANCET

SIR —Thank you for the kind reference to the Bay Mount Annual report, which you make in THE LANCET this week I appreciate the encouragement greatly May I, however, point out that the reference to injections and tonics might be read by a nervous patient as meaning that the injections were also given two hourly, whereas the injections are only given twice or thrice daily according to circumstances Critical readers might consider that to fail to cure two out of seven cases was not a good record Again, in the reference to five cured cases out of seven, it is not quite clear that one case was not treated at all because he was too ill, and that another did not present himself for treatment, but for a change only. He had a special permit to obtain morphine, for reasons of health, and it was not considered advisable to withdraw his drug He came to Bay Mount for a few weeks change while his wife was changing houses and preparing a new home for him This patient has since died

The five treated cases all did remarkably well, and left Bay Mount in good health and free from any desire for the drug

I am, Sir, yours faithfully,
STANFORD PARK

Bay Mount, Paignton, S Devon, Jan 29th, 1927

TRAUMA AND TUMOUR

To the Editor of THE LANCET.

SIR,—In reply to Sir Lenthal Cheatle, may I state that for some months I have been collecting cases of cancer arising in wounds received during the late war and so far have obtained three undoubted cases Probably many more could be found, and I should be glad to obtain particulars of them They are of interest as throwing light upon the length of the period of cancer induction in man The subject of cancer arising in scars other than those due to burns is discussed in the *Cancer Review* (1926, i, pp 108 and 183), Abstract 169, of a paper by Bang, and Abstract 327 of one by Iwamoto, and (1927, ii, p 55) Abstracts 102 and 103 of papers by Tow and Itoh, and by Dubreuilh and Maginel respectively Since the latent period seems to be from 12 to 40 years, it is still perhaps somewhat early to expect many cases of malignant disease arising from wounds received in the last war

I am, Sir, yours faithfully,
H. J B FRY.

The Cancer Hospital Fulham road, London,
S W , Jan 31st, 1927

A MUSEUM OF ECONOMIC BOTANY

A COLLECTION of economic plants made by Dr. J B Hurry was formally handed over to the County Borough of Reading on Jan 25th to form a permanent part of the municipal museum Dr Hurry's hobby of growing plants that minister to the welfare of mankind dates back twenty years or more, when he began to import specimens from various countries, especially from the tropics, compiling at the same time a museum of economic products derived from them As time went on he accepted contributions from the Empire Exhibition, the Imperial Institute, the Royal Botanic Gardens at Kew, the Musee Colonial of Paris, and the Reading University He was actuated by the feeling that botany is essentially a subject to be learnt from the life rather than from books, and that a collection of well-chosen specimens should be useful in cultivating the power of observation and stimulating the imagination of children of school age In the new room of economic botany Dr Hurry's collection is arranged under the seven sections of Food Products, Nuts, Fibres, Woods, Gums and Resins, Medicines, and Dyes, and apart from the exhibits there is a duplicate series in drawers of specimens which can be actually touched and examined In a lecture on Economic Botany, which followed the formal opening of this room, the Headmaster of St John's School, Reading, described the exhibition as a carefully conceived nucleus which should prove of considerable value for teaching purposes It is no doubt well that the children of this country, who only see the limited flora of the temperate zone, should gain some acquaintance with the whole gamut of plants which provide food, clothing, shelter, fuel, light, health, or ornament in various parts of the British Commonwealth

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[1] THE LANCET, 1925, i., 334

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg -Comdr L O Hunt is placed on the Retd List at his own request

ROYAL NAVAL MEDICAL RESERVE

Surg Sub-Lt H O'Connor to be Surg

ROYAL ARMY MEDICAL CORPS

Majs retiring on retd pay F H M Chapman, J L Wood (and is granted the rank of Lt -Col), J H Gurley, and H W Farebrother (and is granted the rank of Lt -Col)

Capt M St C Hamilton, half-pay list, retires on account of ill-health, receiving a gratuity

ARMY RESERVE OF OFFICERS

Col A J MacDougall, late R A M C , having attained the age limit of liability to recall, ceases to belong to the Res of Off

Maj F A Stephens, having attained the age limit of liability to recall, ceases to belong to the Res of Off

TERRITORIAL ARMY

Col G H Edington, having attained the age limit, is ret and retains his rank with permission to wear the prescribed uniform

Lt Col H G L Haynes, from the T A Res of Off , to be Capt

A. H Whyte to be Lt

ROYAL AIR FORCE

The undermentioned Flying Officers are promoted to the rank of Flight Lt C G J Nicolls and B Pollard

The undermentioned are granted temporary commissions in the ranks stated on attachment to the R A F Flight Lt E Alston (Temp Capt , General List, Army, Dental Surgeon) , Flying Officer H P Sutcliffe (Temp Lt , General List, Army, Dental Surgeon)

Flight Lt H J Higgins (Capt , Army Dental Corps) relinquishes his temporary commission on return to Army duty

Squadron Leader J G Worsley (Maj , Army Dental Corps) relinquishes his temporary commission on resignation of his Army commission

INDIAN MEDICAL SERVICE

Lt -Col G Tate to be Col

Capts to be Majs Bager Zainulabiedin Shah, A J D'Souza, R H Malone, Vinayak Narayan Agate, Jehangir Pestonjee Canteenwalla, Lonji Shahpurji Modi, Satyendra Nath Mukerji, B C Ashton, Mani Shankar, Kaikhusru Byramji Bharucha, Erach Ruttanji Daboo, Hira Singh Anand, Bantwal Ganapathi Mallya, Burjorji Hormasji Kamakaka

Temp Lts to be Temp Capts Manoranjan Sen Gupta, Dattatraya Gangadhar Karandikar, Hemandas Pribhdas Manghirmalani, J P Arland, Mohindra Singh, Achanvittil Krishna Manon, Pukukotah Sreenivasachari Varadarajan, Diwan Chand Datta, Muthuswami Nata Rajan, Tonsa Panduranga Rao, and Muneebud Din Minhas

Shankar Karunakar Menon, Tarachand Dayasing Shahani, Assa Singh, and Mohar Chandra to be Temp Lts

The King has approved the relinquishment of his temporary commission by Capt S Christian (who is permitted to retain the rank of Capt)

The King has approved the grant of a temporary commission to Shankar Karunakar Menon, Tarachand Dayasing Shahani, and Assa Singh

DEATHS IN THE SERVICES

Surg Comdr Alexander Gordon Andrews, R N (retd), who died on Jan 16th, entered the Royal Navy as a surgeon in 1884 and in the following year was appointed to H M S *Monarch* Later he served in the cruiser *Pylades* in Australia, and was staff surgeon of the *Terrible* during the South African War and the Boxer rising He was present with the naval brigade at Tientsin In 1903 he was appointed senior medical officer of the *St Vincent*—boys' training ship at Portsmouth—and in 1904 took charge of the Royal Naval Hospital at Yarmouth From 1909 he served in the battleship *Superb*, and from 1911 as fleet surgeon of the Dockyard, Malta In 1914 he joined the battleship *Prince George* and in the following year was appointed for special service at Chatham He retired in 1916

DENTAL WORK IN BIRMINGHAM —Last year at the Birmingham Dental Hospital there were nearly 30,000 operations A new department for dental bacteriology was opened during the year

Medical News.

UNIVERSITY OF CAMBRIDGE —At a recent Congregation the following degree was conferred —

M B , B Ch —R T Mummery

ROYAL COLLEGE OF PHYSICIANS OF LONDON —An ordinary quarterly Comitia of the College was held on Jan 27th, Sir John Rose Bradford, the President, being in the chair The following candidates were admitted as members —

Ahmed Khalil Abdel Khalik, William Arthur Bourne, Hugh Nash Bradbrooke, John Alexander Charles, George Coelho, Thomas Reginald Davies Charles Sydney Douglas Don, John Hartley Gibbens William Gunn, George Stiven Halley, John Reginald Brock Hern Alexander Mills Kennedy, Robert Albert Edward Klaber, Ardeshir Jehangirshah Kohiyar Geoffrey Laurence Samuel Kohnstam, Robert Daniel Lawrence, Maurice Mitman, Edward Clark Noble, Robert James Valentine Pulvertaft, William James Reid, Olive Rendel, Navroji Kharshedji Sahiar, Lewis Herbert Savin, Kenneth Shirley Smith, Kenneth Andrew Soutar, Hilda North Stoessiger, Clara Dunbar Tingle, Robert Arthur Walsh, Robert Goege Ranyard West, Cecil Oswald Young

Dr W C Bosanquet, Dr J H Sequeira, Dr F Craven Moore, and Dr J A Nixon were elected Councillors to take the places of Dr F J Poynton, Dr J H Abram, Dr T Wardrop Griffith, and Sir Walter Morley Fletcher —Sir Francis Champneys was re appointed a representative of the College on the Central Midwives Board —The resignation of Sir Humphry Rolleston of the post of representative of the College on the General Medical Council was received, and a vote of thanks was accorded to him Dr E Farquhar Buzzard was elected as his successor —Dr Stanley Barnes was appointed a representative of the College on the Court of Governors of the University of Birmingham in place of Dr A F Voelcker, whose term of office expired on Dec 31st, 1926 —Dr J H Abram was reappointed a representative of the College on the Court of Governors of the University of Liverpool —The resignation of Sir William Hale-White of the post of representative of the College on the Central Council for District Nursing in London was received, and Dr A S Woodwark was elected in his place —The acceptance by Mr F H Maugham, K C , of the post of Senior Standing Counsel to the College was reported —The President announced that he has appointed Dr J F Gaskell to deliver the Bradshaw Lecture for 1927, and that the Council have appointed Dr F A E Crew of the Animal Breeding Research Department of Edinburgh University, to be Milroy Lecturer in 1928 —A communication was received from the Ministry of Health asking the College to nominate a representative to serve on an Advisory Committee of Clinical Experts to consider the details of the proposed alterations to be suggested by the British Government at the forthcoming Revision of the International List of Causes of Death, by the Health Section of the League of Nations at Geneva Dr Robert Hutchison was appointed Dr S Monckton Copeman was appointed to represent the College at the Congress of the Royal Sanitary Institute to be held at Hastings from July 11th to 16th, 1927 —The President, Sir John Rose Bradford, was elected as a delegate to the celebration of the Lister Centenary in April, 1927 —A report was received from Sir John Broadbent, who represented the College at the celebration of the Centenary of Laennec in Paris in December, 1926

At the same meeting of the Comitia licences to practise were conferred upon 126 candidates (21 women and 105 men) who have passed the recent Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the by-laws of the College The following are the names and medical schools of the successful candidates —

W M Abdel Malek, Birmingham G M Addison Cambridge and St Thomas's J C B Allen, Sydney and Middlesex , J S Alman, Berlin and Middlesex , H Archer, Bristol , F F Augsburger, Lausanne , M T Aung Guy's G C Babington, St Thomas's , D H Belfrage Cambridge and St George's R N Bery and R V Bowles Univ Coll , Winifred P Brinckman, Bristol , A H Bruce, Guy's S M Burrows, St Thomas's , C P Campion, Cambridge and Univ Coll Margaret E M Carter St Mary's , B M Clark St Bart 's , H H Cohen, London , E Colin Russ, Middlesex C L Cope Oxford and Univ Coll J H Couch, Toronto , Geraldine H Cowle Royal Free and Westminster R D Curran, Cambridge and St George s , C Davies Birmingham , J Dean St Bart 's Daphne W Dear King s Coll J H A Donelland Cambridge and St Bart 's A O Dreosti St George s , J Ellison Oxford and Leeds D K Evans Cardiff , Enid C Evans St Andrew's and Westminster E S Evans and F M M Fyton Jones St Bart 's A P Farmer and G M FitzGibbon, St Thomas s A M Fleming Middlesex , A B Follows Liverpool Elsie G M Ford, Leeds , D Gamsu Durham , H G Garland, Leeds , A Golombek, King's Coll, T R Griffiths and S W Hardwick, Cardiff and St Bart's, W V Harke, St Thomas's, N A Haworth, Charing Cross, Lilian M J Henry, Cambridge and King's Coll, E M V Hensman, Madras and Middlesex, Catherine E Hill, Royal Free, H E Houfton, St Bart's, Isabelle R Humphreys-Owen, King's Coll, K N Isherwood, Leeds, R F Jayne, London, A C Jepson, Cambridge and Guy's, T M Jones, Liverpool, V Kathirgamatamby, Madras and London, M S Katre, Madras, F Kellett, Cambridge and St George's, A B Kettle, Guy's, P N Lahiri, Calcutta and Guy's, D T Lewis, Cardiff and Middlesex, I N Lewis, Cardiff and St George's, E W Lindeck Cambridge and Univ Coll, D A Llewellyn, St Bart's, F E Loewy, Vienna and Middlesex, Joyce McConnel, Royal Free, W S Maclay, Cambridge and St Bart's, E McLellan, St George's, G McLoughlin, Liverpool, D J MacMyn, Cambridge and King's Coll, M Malk, St Bart's, E R Matthews, St Mary's, F B Matthews, Middlesex, J W Melville, Liverpool, R L Midgley Univ Coll, I A Mills, Cardiff, Margaret Mitchell, Birmingham, J K Monro, Cambridge and London, W C Munro St Bart's, J C Neely, Oxford and Guy's, R Nicklin Birmingham, Joan Nixon, Univ Coll, W C W Nixon and Mary O'Leary, St Mary's, Greta K Olsson, Westminster, Catherine J Ormerod, Cambridge and King's Coll, R Pearce, Cambridge and St Bart's, N F Pearson, King's Coll, R S Pilcher, Univ Coll, T J Pittard, Cardiff and St Bart's, L J G Pitt Payne, Guy's, Aileen M S Pollock Royal Free and St Mary's, J C C Poole, Cambridge and St Bart's, C L Potts, Cambridge and Birmingham, I M Preston, Manchester W P Purvis, Cambridge and St Thomas's, J S Rake, Oxford and Guy's, Marion Ravell, Royal Free, L A Richardson, Cambridge and St Thomas's, N Rizkalla, Manchester, Enid H Rockstro, Univ Coll, E L F Rose, Cambridge and St Bart's, N Rosen, Guy's, G E Rowan, St Thomas's, A H Russell, Guy's, C G A Sadler, St Mary's, C H St Johnston, Birmingham, T F M Scott, Cambridge and St George's, D H Smith, London, H M Soar, Charing Cross R Stanton, Westminster, Kathleen M Stuart-Harris Royal Free, C N Suter, St Mary's, C B V Tait, St Bart's, H Teitelbaum, Cardiff, H D Tonking, St Thomas's, J R H Towers, Cambridge and Leeds, C G Townsend, Cambridge and Guy's, A G Tribe and A. S Wallis St Thomas's, Edith V E Whidborne, Cambridge and King's Coll, N J Willans, Middlesex, G P Williams Cardiff, W D Williams, London, R W Windle, Cambridge and St Bart's, and F H C E Woodrow, Cambridge and St Bart's, and F H Woolley, Bristol

A supplementary list of licentiates will be issued later for those candidates who had not completed their examination on Jan 27th

The undermentioned diploma was conferred (jointly with the Royal College of Surgeons) upon the following candidates —

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY

M Anton, T R Aynsley, Doris M Baker, K R Chaudhri, M Fine, Winifrede M Fish, J C Gillespie B Gluck, B Graves, J W Harris, H N Ingham G D E Jones, Edith M F McGill, H D Patel N N Ray, A H S Richardson, A F Senewiratne, T Shukla, S Singh, Caroline M Stenhouse, and D A Williams

Diplomas in Public Health, in Laryngology and Otology, and in Psychological Medicine were also conferred on candidates whose names have already been announced (The Lancet, Jan 22nd, p 209)

Society of Apothecaries of London—At recent examinations the following candidates passed in the undermentioned subjects —

Surgery—G W Ayres, St Mary's Hosp, B Best, Bristol and Liverpool, N S J Roberts (section II) Middlesex Hosp, B Rosenzvit, Royal Free Hosp, M T Y Selim, Liverpool, and W D Williams, London Hosp

Medicine—L G Apps, London Hosp, L O Jaggassar, St Mary's Hosp, L W. Rose, Guy's Hosp, S E Tremellen, King's College Hosp, and S Wray, Manchester

Forensic Medicine—L G Apps, London Hosp, W A A Collington, Guy's Hosp, S E Tremellen King's College Hosp, and E H Waller, Charing Cross Hosp

Midwifery—G W Ayres, St Mary's Hosp, P V Bamford, London Hosp, R Bobo, Paris, S K Rigg, Bristol, and K. Roberts, Liverpool

The Diploma of the Society has been granted to the following candidates, entitling them to practise medicine, surgery, and midwifery R Bobo L O Jaggassar, K Roberts, S E Tremellen and W D Williams

Royal Institution—On Tuesday, Feb 8th, at 5 15 P M, Prof Julian Huxley will lecture on Animal Growth and Development

Royal Statistical Society—The Council of this Society will in 1927 award the Frances Wood Memorial Prize, value £30, for the best investigation, on statistical lines, of any problem affecting the economic or social conditions of the wage-earning classes Particulars of the competition, which is only open to specified groups of candidates, may be had from the hon secretaries of the Society, 9, Adelphi-terrace, London, W C 2

University of London—At a meeting of the Senate held on Jan 26th, Sir William Beveridge, the Vice-Chancellor, in the chair, the following appointments were made Mr H L. Eason to represent the University on the General Medical Council, Sir William Collins to be a member of the Royal Sanitary Institute and Sanitary Inspectors' Examination Joint Board, Sir Holburt Waring to represent the University at the celebration of the centenary of the birth of Lord Lister, to take place in London on April 5th, and Dr M E Delafield to be a representative (in respect of University College) at the Congress of the Royal Sanitary Institute at Hastings in July

A course of three lectures (illustrated with lantern slides) on Allergic Diseases caused by Factors of Climate, will be given by Prof W Storm Van Leeuwen, of the University of Leiden, at St Thomas's Hospital (Sherrington School of Physiology) on Monday, Tuesday, and Wednesday, Feb 14th, 15th, and 16th, at 4 P M Admission free, without ticket

University College—A course of six public lectures on Reproduction will be given by Dr A. S Parkes at 5 P M. on Mondays, Feb 7th, 14th, 21st, and 28th, and March 7th, and 14th Dr E D Adrian will lecture on the Action of the Sense Organs on Wednesdays, Feb 9th, 16th, and 23rd at 5 P M

West Kent Medico-Chirurgical Society—A meeting of this Society will be held at the Miller General Hospital, Greenwich, on Friday, Feb 11th, at 8 45 P M Mr Zachary Cope will give an address on Surgical Emergencies in General Practice

Royal Medico-Psychological Association—The next quarterly meeting of the Association will be held on Feb 16th at the Cheshire County Mental Hospital, Parkside, Macclesfield Prof T H Pear will read a paper on Recent Investigations on Visual Imagery with Special Reference to Hallucinations

Hamilton Drummond Memorial Fund—A general meeting of the subscribers to this fund will be held in the library of the Royal Infirmary, Newcastle-upon-Tyne, on Feb 7th, at 7 30 P M., in order to approve a scheme for the memorial, to appoint trustees for the Fund, and an executive committee

General Lying-in Hospital, York-road—The new building of the Post Certificate School will be opened by Mr Neville Chamberlain, Minister of Health, on Tuesday, Feb 8th, at 3 15, when the presentation will be made to Sir Francis Champneys, President of the hospital, by Mr H W Lydall, the solicitor of the donor Dr John S Fairbairn will take the chair and the ceremony will be followed by a reception

Condition of County Clare Hospitals—The Minister for Local Government in the Irish Free State is to be asked for a free grant towards putting certain of the hospitals in Clare into "fair condition" The Kilrush and Ennistymon hospitals under the County Clare Board of Health are officially stated to be "fast falling into ruin," while the County Hospital itself is "in urgent need of extensive repairs" Another institution is afflicted with a plague of rats which run about the wards, eat the nurses' clothing, and "make themselves at home in every room"

Fellowship of Medicine and Post-Graduate Medical Association—Dr W M Wanklyn will lecture for the Fellowship on Exanthemata with Special Reference to Small-pox, on Feb 10th, at 5 P M, at the house of the Medical Society of London, 11 Chandos-street, Cavendish-square Mr W H Trethowan will give a special demonstration in orthopædic surgery at the Royal National Orthopædic Hospital on Feb 10th, at 3 P M, and a special lecture on Causes and Treatment of Vomiting in Children will be delivered by Dr C C Beatty at the Royal Northern Hospital on Feb 15th at 3 15 P M. All these lectures and demonstrations are free to members of the medical profession From Feb 7th, for two weeks, the Paddington Green Hospital and the Victoria Hospital will jointly hold an all-day course in Diseases of Children, and beginning on the same date the London Lock Hospital will hold a four weeks' course in Venereal Diseases, consisting of clinical instruction in the out-patient department in the afternoon and evening and special lectures at intervals The Royal Northern Hospital is undertaking a special course for practitioners for one week from Feb 21st lectures will be given in the afternoon and the rest of the time will be devoted to teaching in the wards and various departments of the hospital The Fellowship arranges practical courses in anæsthetics and obstetrics, and arrangements can be made for clinical assistants Syllabuses of Special Courses, the General Course Programme and copies of the *Post-Graduate Medical Journal* may be had from the secretary of the Fellowship at 1, Wimpole-street, London, W 1

Anti-Venereal Campaign in Manchester—The Manchester Public Health Committee is launching a campaign for the prevention and cure of venereal diseases There will be two addresses daily in various public halls in the city from Feb 14th to 19th, the one in the afternoon will be for women only, and the one in the evening for mixed audiences Each address will be illustrated by cinema films, and there will be no charge for admission

Further Extension of Queen Mary's Hospital At the annual dinner of this hospital last week, Prince Henry, the President, stated that the out-patient department is the fourth largest in London and the maternity department the fourth largest in England During the last four years three new wings have been erected at a cost of £120,000, and a fourth is now being built which will accommodate a solarium, an enlarged X ray department, and a new medical ward for children

Gift to the University of Edinburgh—The International Education Board of New York, one of the Rockefeller Foundations, has informed the University of Edinburgh that it is making a gift of £74,000, to be used as a contribution to the cost of a new department of zoology, to be created at the King's Buildings of the University at Craigmillar Of this sum £38,000 is for building, £10,000 for equipment, and £26,000 for endowment The University has £41,000 in hand for building, so that a total sum of £79,000 will now be available for this purpose The University Court has gratefully accepted the gift, and the construction of the new department will begin at once

Action against Surgeon for Operation without Consent—At the Liverpool Assizes on Jan 27th a case was tried in which a patient sued Mr St George Wilson for negligence, and for performing an operation upon her without her consent at the Samaritan Hospital for Women. The statement made in court was to the effect that the patient was examined by Mr Wilson at the hospital in October, 1923, and by arrangement returned the following day for examination under an anæsthetic She was complaining of symptoms of cystitis of great urgency, and during his examination Mr Wilson made up his mind that it would be wiser to establish free drainage of the bladder at once and thus avoid giving a second anæsthetic. When doing this he was unaware that the patient had not signed the permission book as the routine practice at the hospital requires, he had explained to her that a serious operation would be required for relief of the toxæmia from which she was suffering, but by some inadvertence no written consent had been obtained A suprapubic cystostomy was performed, and five weeks afterwards the patient was transferred to a general hospital where a "hydronephrotic" kidney was removed Owing to a persistent vesical fistula she still has to wear a suprapubic apparatus Not until a year after operation was any complaint made, and a further period of two years elapsed before action was taken At the hearing the plaintiff withdrew any suggestion that the operation had not been skilfully performed, but maintained that she had never consented to it, and that in fact she had not realised until some time later that it had been done In answer to questions she said that if she had been told beforehand that an immediate operation was necessary she would have consented to it. Even if she had been brought out of the effect of the anæsthetic and had been told that an operation was imperatively necessary, she would have consented to go under a second anæsthetic again and be operated upon She agreed that the initial operation had probably saved her life Dr H H McWilliam, senior medical officer of the Walton Infirmary, said that the operation had been necessary to save life On the plaintiff's behalf Mr Rice Jones said that the body of a man or woman was sacred, and no one had any right to meddle with it So far back as 1767 it had been held that a surgeon ought not to operate without the patient's consent It was necessary for a person to be told that an operation was about to be performed in order that he or she might take courage or get a second opinion. Mr F A Jeans, honorary surgeon at the Royal Infirmary, was called in Mr Wilson's defence He stated that so far as he could judge from the history he would have acted as Mr Wilson had done, in the interest of the patient He elaborated this point when a supposititious case was put before him by the judge, of a patient under an anæsthetic being subjected to an operation the necessity for which was only found in the course of the proceedings Mr Jeans pointed out that in such a case there was undoubtedly a clash between the interests of the patient and the interests of the surgeon Mr Justice Wright, addressing the jury, said that no surgeon, however well intentioned he might be, had any right to perform an operation without the consent of the person concerned After a long retirement the special jury found for the defendant with costs, appending the rider "No doctor ought to operate without getting consent," to which the Judge added, "if it can be avoided"

Comment on this case will be found on p 309

University of Manchester—Dr William Fletcher Shaw, who has been professor of obstetrics and gynæcology in the University since May, 1925, has been appointed to the chair of clinical obstetrics and gynæcology in succession to the late Prof W E Fothergill Dr Daniel Dougal, who is at present lecturer in obstetrics and gynæcology in the University, has been appointed to the chair of obstetrics and gynæcology vacated by Prof Fletcher Shaw

Dr Dougal was educated at the Manchester Grammar School and in the University of Manchester He was awarded a gold medal for his M D thesis and is the author of many articles on obstetric and gynæcological subjects He had a distinguished military career, and is at present Lieut -Colonel and Commandant of the Second Western General Hospital Before the war he was a demonstrator in anatomy in the University, and since 1920 has been continuously associated with the gynæcological department as demonstrator, assistant-lecturer, and lecturer Among other appointments which he holds are those of honorary surgeon to the St Mary's Hospitals for Women and Children, Manchester, and honorary gynæcological surgeon to the Manchester Royal Infirmary

Questionaire on White Flour—The National Association of British and Irish Millers has issued a series of questions to over a thousand doctors in every county of England, Scotland and Wales, the names being chosen at random from the Medical Directory The Association is stated to be "desirous of obtaining representative and authoritative medical opinion on the value of the type of bread which has been evolved by the public requirements of many years, and for the making of which nearly all its mills are specially equipped" The circulated letter goes on to say that "in one or two cases, unfortunately, statements calculated to create the gravest alarm in the minds of the public have been made by distinguished members of your profession, active and retired The millers desire to serve the public faithfully, and to give them good flour It is apparent however, that the intricate organisation of a great national industry cannot be dislocated by demands that may be merely transient—and which are probably unsupported by the medical profession as a whole—without serious results to the industry and to the poorer classes of bread buyers" The questions to be answered are the following:—

1 Do you concur in the statement made by the President of the New Health Society (*Daily Mail*, Oct 21st, 1926), that "the curse of our age is that we are provided with white bread"?

2 Do you consider that having regard to the average variety of diet now enjoyed by people in this country, white bread is a good and nutritious food?

3 Do you consider that white bread as part of an ordinary mixed diet is likely to lower the standard of national health?

4 Do you personally eat white bread?

It is not intended that in any circumstances the names of those sending replies shall be revealed

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 22ND, 1927

Notifications—The following cases of infectious disease were notified during the week. Small-pox, 558 (last week 675), scarlet fever, 1455; diphtheria, 1019, enteric fever, 22, pneumonia, 1984, puerperal fever, 24, puerperal pyrexia 136; cerebro-spinal fever 11; acute poliomyelitis, 17, acute polio-encephalitis, 2, encephalitis lethargica 32, dysentery, 4, ophthalmia neonatorum, 108 There was no case of cholera, plague, or typhus fever notified during the week

The cases of small-pox were reported from the same counties as last week, with the addition of one case from Stafford (Stone R D), but Durham reported 313 instead of 349, and Yorks West Riding, 161 instead of 266, the number of notifications from Sheffield being nearly 100 less than in the previous week. In Northumberland however, 24 cases were notified as against 10 last week, 15 of them from Ashington

Deaths—In the aggregate of great towns including London there was no death from small-pox, 2 (0) from enteric fever, 43 (0) from measles 4 (1) from scarlet fever 66 (32) from whooping-cough, 39 (9) from diphtheria 44 (10) from diarrhœa and enteritis under 2 years, and 470 (197) from influenza The figures in parentheses are those for London itself The influenza deaths for the last six weeks have thus been 60 69, 86, 173, 326, 470—and 725 has been given verbally as the figure for the next week

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W
TUESDAY, Feb 8th—5 P M, THERAPEUTICS AND PHARMACOLOGY Dr J W Trevan Chemical Constitution and Pharmacological Action Other papers will be read 8 30 P M PSYCHIATRY Joint paper Dr T A Ross and Dr R D Gillespie Progression and Regression in Two Homosexuals
WEDNESDAY—5 P M, SURGERY SUBSECTION OF PROCTOLOGY Discussion on Diverticulitis. Opening speakers Dr Edmund Spriggs (Medical), Sir Charles Gordon-Watson (Surgical) Dr Bertram Shires (Radiological) The Discussion will be continued by Dr T de Martel (Paris) and others
THURSDAY—8 30 P M, NEUROLOGY Paper Dr E. Arnold Carmichael Optic Nystagmus
FRIDAY—LIBRARY The Library will be open until 10 P M 5 30 P M, CLINICAL (Cases at 5 P M) 8 30 P M, OPHTHALMOLOGY AND NEUROLOGY Special Discussion The Value of Recent Methods of Treatment in the Late Stages of Ocular Syphilis, to be opened by Mr J H Fisher and Dr J P Martin The following will also take part in the Discussion Sir Arnold Lawson, Dr A Feiling, and Mr S H Browning

MEDICAL SOCIETY OF LONDON, 11, Chandos street, Cavendish-square, W
MONDAY, Feb 7th—8 30 P M Discussion on Poliomyelitis to be introduced by Dr Francis M R Walshe and Prof J McIntosh, followed by Sir Thomas Horder

BIOCHEMICAL SOCIETY
MONDAY, Feb 7th—5 P.M (in the Lister Institute of Preventive Medicine, Chelsea Bridge road, S W) Communications C Dorée and E C Barton Wright A New Type of Alkali Lignin F Dickens, E C Dodds, W Lawson, and N F Maclagan Observations on the Purification and Properties of Insulin P Eggleton and M G Eggleton The Significance of Phosphoric Acid in Muscular Contraction I Smedley MacLean and C G Daubney The Lipins of Yeast W T J Morgan Methylated Derivatives of Hexosephosphoric Acids A Harden Meyerhof's Theory of Alcoholic Fermentation L F Hewitt Proteins of the Cerebro Spinal Fluid M H Roscoe Nitrogen Metabolism Technique for Use with Small Animals H W Southgate An efficient Gas Scrubber O Rosenheim and T A Webster. On the Nature of Provitamin D J R Marrack. The Effect of the Reaction on the Osmotic Pressure of Serum Proteins The following exhibits and demonstrations will also be shown from 3 30 to 4 30 P.M W T J Morgan. Apparatus for Pregl's Methods of Micro Analysis T Lumsden and A C Kohn-Speyer Simplified Method of Tissue Culture F M Burnet Bacteriophage Phenomena M Rhodes National Collection of Type Cultures Strains Employed in Industry N S Lucas Apparatus for Determining the Coefficient of Absorption of Ultra-Violet Rays for Skin

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W
MONDAY, Feb 7th—10 A M Mr MacDonald Genito-Urinary Operations 2 P M, Mr Addison Surgical Wards 4 P M, Mr Addison Surgery of the Stomach and Duodenum
TUESDAY—10 A M, Medical Registrar Clinical Methods 12 noon Dr Burrell Chest Cases 2 P M, Mr Sinclair Surgical Out patients
WEDNESDAY—10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Out patients 2 30 P M, Mr Armour Surgical Wards
THURSDAY—12 noon, Mr Simmonds Demonstration of Fractures 3 P M, Sir Henry Simson Gynæcological Wards 4 P M Dr Snowden The Conversion Neurosis
FRIDAY—11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out patients 4 P M Dr Owen Heart Disease in Infancy and Early Childhood
SATURDAY—9 30 A M, Dr Burnford Bacterial Therapy 10 A M, Mr Banks Davis Operations of the Throat, Nose, and Ear
Daily—10 A M to 5 P M, Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays 10 A M to 1 P M)

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION 1, Wimpole street, W
MONDAY, Feb 7th, to SATURDAY, Feb 12th—FELLOWSHIP OF MEDICINE Special lecture at the Medical Society, 11, Chandos street, W, at 5 P M, on Thurs 10 P M Dr W M C Wanklyn Exanthemata with Special Reference to Small pox Open to all members of the medical profession without fee—ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, Great Portland street W Special demonstration on Thurs at 3 P M, by Mr W H Trethowan. Open to all members of the medical profession without fee—COMBINED COURSE IN CHILDREN'S DISEASES, Paddington Green Hospital and Victoria Hospital All day course—ST JOHN'S HOSPITAL, Leicester square, W C Special course in Dermatology Daily instruction in Out patient Department Lectures twice weekly—LONDON LOCK HOSPITAL, Dean street, W Special course in V D Afternoon and evening clinics daily with formal lectures—NATIONAL HOSPITAL, Queen square W C Special course in Neurology Daily instruction and special lectures Further information from the Secretary

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N
MONDAY, Feb 7th—10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical, and Gynæcological Clinics Operations
TUESDAY—2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations
WEDNESDAY—2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations
THURSDAY—11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations
FRIDAY—10 30 A M, Throat, Nose, and Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen-square W C
MONDAY, Feb 7th—2 P M, Dr Hinds Howell Out patient Clinic 3 30 P M, Dr Riddoch Mental Sequelæ of Encephalitis Lethargica
TUESDAY—2 P M, Dr Walshe Out patient Clinic 3 30 P M, Dr Risien Russell Syphilis as it Affects the Nervous System
THURSDAY—2 P M, Dr Kinnier Wilson Out patient Clinic 3 30 P M Dr Walshe Poliomyelitis
FRIDAY—2 P M, Dr Adie Out patient Clinic 3 30 P M Mr Elmquist Demonstration of re education Methods in Exercise Room

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C
THURSDAY, Feb 10th—4 P M, Dr Donald Paterson Care and Feeding of Premature Infant

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE
TUESDAY, Feb 8th—3 15 P M, Dr F D Saner Lecture Demonstration on Fractures

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49 Leicester-square, W C
TUESDAY, Feb 8th—5 P M, Dr E Graham Little Lichen Planus
THURSDAY—5 P.M, Dr J E M Wigley Lupus Erythematosus

ROYAL DENTAL HOSPITAL SCHOOL OF DENTAL SURGERY, Post Graduate Lectures
WEDNESDAY, Feb 9th—5 30 P M, Mr E Rhodes Interpretation of Dental Radiographs

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)
MONDAY, Feb 7th—6 P M (at the Medical Society of London, 11, Chandos street, W) Dr L R Shore Anatomy and Physiology

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester
WEDNESDAY, Feb 9th—4 15 P M, Mr A C Magian Sterility and its Cure

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS
FRIDAY, Feb 11th—3 30 P M (at the Royal Hospital) Dr Naish Clinical Cases

Appointments.

ADDIS, W ROBERT, M B, Ch B Edin has been appointed Honorary Assistant Surgeon, St Mary's Hospitals, Manchester

AINSCOW, GLADYS E, M B, Ch B Birm, D P H Assistant Medical Officer of Health for Maternity and Child Welfare, Leeds

BROCKBANK, W, M A, B Ch Camb, M R C P Lond, Resident Medical Officer, Manchester Royal Infirmary

BURT-WHITE H F R C S Eng, Hon Obstetric Surgeon to the London Female Lock Hospital, Harrow road W

HEWER, C LANGTON M D Lond F R C S Eng, a Member of the Honorary Medical Staff of the Queen's Hospital for Children, E

THOMAS, H E, L R C P Lond, M R C S, House Surgeon to Swansea Hospital Board

VLASTO, M, M B Lond, F R C S Eng Surgeon to the Ear, Nose, and Throat Department West London Hospital

Royal West Sussex Hospital BROOKE, R, M B B S Lond, F R C S Eng, and GOUGH, J H H, M R C S L R C P Lond, Hon Assistant Surgeons

Certifying Surgeons under the Factory and Workshop Acts WRANGHAM, J M, M B B Ch Camb (Ripponden, West Riding), MILNER, E H, M B, Ch B Leeds (Driffield, East Riding)

Vacancies.

For further information refer to the advertisement columns

Aylesford Kent, Hospital and Sanatorium, &c , for Tuberculosis Ex Service Men —Jun P £100

Bristol Eye Hospital —H S £150

Bury and District Joint Hospital Board —Asst Med Supt £400

Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W C —Res H S At rate of £75

Derby Derbyshire Education Committee —School Dentist £500–£550

East London Hospital for Children and Dispensary for Women, Shadwell E —Surg and Asst Surg

Evelina Hospital for Children, Southwark , S E —X Ray Worker £160

Gloucester, Gloucestershire Royal Infirmary —H P and Asst H S At rate of £150 and £120 respectively

Hospital for Sick Children Great Ormond-st , W C —Cas O £400

Inverness Northern Infirmary —Jun Med Res £100

King s College Hospital Denmark Hill, S E —Jun P for Dis of Skin.

Liverpool, Royal Children s Hospital —Res M O At rate of £150 Also Two Res H P 's and two Res H S 's Each at rate of £60

Macclesfield General Infirmary Hon Ophth S

Manchester Ancoats Hospital —Asst Surg Reg

Manchester, St Mary's Hospital Whitworth Park —Res Surg O £200

New Zealand Dental Hospital Dept —Sen Asst M O s At rate of £775

Queen's Hospital for Children Hackney road, E —Res M O £200 Also H P and H S Each at rate of £100

Royal Free Hospital, Gray's Inn-road, W C —Asst Phys

Royal Ear Hospital, Huntly street W C —Registrar. £50

Royal Northern Hospital Holloway, N —Res M O £200 Also H S At rate of £70

Ryde Isle of Wight Children s Hospital and Maternity Home —Res M O At rate of £100

Scottish Board of Health —Dist M O £1000

Stoke-on-Trent City —M O H £1400

Stoke-on Trent, North Staffordshire Royal Infirmary —Radiologist £500

Sudan Government Wellcome Tropical Research Laboratories Khartoum —Asst Bacteriologist £660–£720

University College Hospital Gower-street, W C —Hon Associate P and S

Willesden Urban District Council, —Asst M O £600

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Stewarton (Ayrshire) Bilston (Staffs) Godalming (Surrey) Presteign (Radnorshire), Silsden (Yorks W Riding) and Williton (Somerset)

Births, Marriages, and Deaths.

BIRTHS

Bate —On Jan 28th at Fourth avenue Hove the wife of Geoffrey Bate F R C S E , of a daughter

MARRIAGES

Bevan—Combe —On Jan 22nd at St Peter s Church Brockley Frank Arthur Bevan M B B S to Mary elder daughter of the late Charles E Combe L D S and Mrs George Read of Holly Bank Adelaide road S E

Dawson—Paton —On Jan 29th at St Matthew s Church Denmark Hill Dr Wm S Dawson to Gladys Lyle Paton

Kennedy—Hart —On Jan 26th at St Laurence Church Measham Leicestershire George Rollo Kennedy M B Ch B (Edin) of Claverley Salop to Mary Hampton only daughter of the late Dr G S Hart and Mrs. Hart and granddaughter of the late Dr J W Mulligan of Abersychan, Mon

Porter—France Hayhurst —On Jan 26th at St Peter's Wrockwardine Wellington Salop Cecil Petyn Porter M B Ch B of Kidderminster to Cecily younger daughter of the late Rev Hesketh France Hayhurst and Mrs France-Hayhurst

DEATHS

Bradshaw —On Jan 25th at The Tower Mold Thomas Robert Bradshaw M D F R C P late of Rodney-street, Liverpool aged 69

Elliott —On Jan 26th at his residence "Cranford South drive St Anne s-on the Sea Arthur Campbell Elliott M B C M M B E aged 61 years

Fletcher —On Jan 26th John Corbet Fletcher, M D C M , aged 84

Fletcher —On Jan 29th after long illness Martha Parker Fletcher for 51 years beloved and devoted wife of the late John Corbet Fletcher aged 73

Fry —On Jan 29th at Brentwood Langley road Surbiton. John Farrant Fry L R C P Lond M R C S Eng aged 74

Hosford —On Jan 24th at 37 Richmond Hill Thomas Stroud Hosford M R C S L R C P aged 83

N B —A fee of 7s 6d is charged for the insertion of Notices of Births Marriages and Deaths

Notes, Comments, and Abstracts.

RADIOGRAPHY AS IT AFFECTS THE ASSURABILITY OF OPERATORS [1]

By Stanley Melville, M D Brux , M R C S Eng ,

BARRISTER-AT-LAW RADIOLOGIST, ST GEORGE S HOSPITAL AND HOSPITAL FOR DISEASES OF THE CHEST, BROMPTON

It has been my lot to try to do something for the greater safety of the X ray worker and I hope to demonstrate to you that under certain know conditions such a life is a perfectly suitable risk Ten years ago even six years ago I dared not have suggested such a thing All who have been injured (so far as my investigations have carried me) received their injuries before we had any definite knowledge as to the precise nature of the injuries or how to combat them Even the physical nature of X rays was, until recently, much in dispute Only within the last year have we known that they are ether waves or disturbances of the ether akin to light but with a wave length some 10,000 times less than similar disturbances known as light

Until quite recent times, too most if not all X ray work has been carried out in small ill-ventilated rooms and with very inadequate or no protection

I think it may be well if I direct attention to the discussion of the two main points (1) the effect of X rays upon the tissues and upon the blood , (2) the present position as regards protection

(1) *Effect upon the Tissues*

The chronic radio-dermatitis of X ray operators is the result of small frequently repeated doses the first effect of which is a stimulation of epithelial growth The result of this is that the skin becomes dry and hard with the formation of warty growths Changes in the blood-vessels take place and the exposed parts (especially the dorsum of the hands) become red and mottled At a later stage in some few cases ulceration has taken place which has developed into a carcinomatous growth In the "Acta Radiologica" Amundsen in 1924 published the results of his investigations lasting over a number of years on the blood of an X ray staff He found that there was a definite deviation from the normal in the whole of the personnel as follows (1) diminution in the actual number of white cells , (2) reduced percentage especially of the polymorphonuclears (3) no alteration in the hæmoglobin He found that the blood picture definitely improved after a period of cessation from work but especially *after the protective arrangements had been improved*, the latter a most important point as I shall hope to show you

As a result of innumerable counts made in many institutions all over the country the following has I think been established Over-exposure under faulty working conditions shows the following changes (*a*) invariable leucopenia the white cells falling to less than 50 per cent of the normal, the reduction falling chiefly upon the polynuclear leucocytes and the lymphocytes (*b*) following this a gradual decrease in the total number of the red blood corpuscles and in the hæmoglobin percentage With undue radiation (and especially where the bone-marrow or the spleen has received the chief dosage) a much more serious condition has been recorded Severe aplastic anæmia ending in death was seen in certain of the workers at the Radium Institute and among private persons who were engaged in either radium or X ray work

I come now to the second and, to my mind the more hopeful part of my paper

(2) *The Present Position as Regards Protection*

In 1920 the problem of adequate protection had assumed large proportions Not only were there some definite cases of aplastic anæmia among the workers at the Radium Institute but in the same year there occurred the untimely death of Ironside Bruce a *comparatively* young and energetic radiologist, from the same dire complaint About that time having heard a rumour to the effect that there was likely to be a great crusade by the Press against the use of X rays and radium, I determined to get something started by way of counterblast I found all my colleagues in agreement to organise the X ray and Radium Protection Committee We were fortunate in getting as our Chairman Sir Humphry Rolleston The committee was thoroughly representative of British radiology, the members being in the first instance elected by the Rontgen Society the Electro-therapeutic Section of the Royal Society of Medicine and by the British Association for the Advancement of Radiology and Physiotherapy. Dr J C Mottram joined us as representing the Radium Institute, and he undertook the investigation into the blood condition Prof. S Russ represented the Institute of Physics, and the National Physical Laboratory was represented by Dr G W C Kaye, to whom we owe a very great amount of the experimental work upon which the report was finally built

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[1] An address read to a meeting of the Assurance Medical Society on Jan. 5th.

No committee ever worked harder or more harmoniously. The energy of our Chairman was most infectious and not infrequently he required us to meet more than once a week In due course two reports were drawn up They are very thorough and deal not only with the question of adequate protection for the operator, but with such important questions as working hours, holidays, fresh air, ventilation and construction of X ray rooms The introduction to the report reads as follows —

"The danger of over-exposure to X rays and radium can be avoided by the provision of efficient protection and suitable working conditions"

At first, there was consternation among the manufacturers, for this country was the first to insist upon the need for protection—that is to say, protection based upon experiment and reasonably adequate The manufacturers had their working designs which were totally inadequate for the additional weight of protective material demanded Without a moment's hesitation, as though infected by the spirit of the committee, they scrapped their designs, brought out new forms of apparatus, in every respect up to the standard set up by the committee and the tests of the National Physical Laboratory In no other country would such a thing have been possible without definite legislation The Ministry of Health, too, took up the matter and wherever it had control or could exercise persuasion, the standard set up by the committee was ordered or advised It is doubtful if to-day you could buy any apparatus in this country, at any rate of British manufacture, that does not bear the imprimatur of the committee

Finally, the Home Office invited us to express an opinion on the question of including certain diseases and injuries in the Schedule under the Workmen's Compensation Act, 1906

Russia has quite recently passed some very stringent laws for the protection of X ray workers These regulations are issued under the authority of the Commissariat of Labour and deal with hours of work, which are limited to four hours a day, and also lay down definite rules much on the lines of our committee, but they require each worker to be given at least six weeks' holiday a year, preferably in two halves They provide also for systematic medical inspection of all X ray workers

Some New Facts

In conclusion, I would ask you to look at some few facts which I have been able to bring forward as evidence of the *immediate result of protection* The following have been given to me by Dr Mottram —

1 Lymphocyte count of the staff of the Radium Institute in 1919 gives an average of 1697 compared with an average count of a number of controls of 2751

2 Polymorph count also of the staff of the Radium Institute in 1919 Here again the average of the staff was 2991, compared with the average of the controls which was 6162 In both cases the controls were taken from the *Journal of Experimental Medicine.*

3 White blood count of the staff of the Radium Institute *after increased protection*, which began in 1919 This table gives a count of total white cells in thousands per c mm In 1919 the average was 4000, and it steadily rose until in 1926 it reached the steady figure of nearly 7000

Prof Russ has lent me a chart recording systematic red and white count of two members of the staff employed at the Middlesex Hospital in the radium department They have been remarkably steady for some years

I have received a number of letters regarding the question which we are discussing to-day —

Mr Cecil Rowntree, whose Hunterian lecture at the Royal College of Surgeons in 1909 was on the subject of X ray carcinoma, writes "I think it would be quite right to say that we need not anticipate further cases, having regard to the fact that burns and dermatitis are now practically unknown"

Dr Mottram is even more definite "Anyone who burns himself nowadays in the handling of radium is a suicide, and as such he ought to be dealt with under this clause in his policy" Dr Kaye writes that he is quite convinced that, providing the recommendations of the committee are obeyed, the risk to the operator is absolutely negligible from the physical standpoint at least He makes the following significant remark "It is difficult to do anything for the fool who calmly lights a cigar while sitting on a gunpowder barrel" Dr Gilbert Scott, in sending me the statement of Dr L. Ash, who systematically makes blood counts on the X ray staff of the London Hospital, states that so far as the total blood cells (red and white) and the differential counts are concerned, there is no change of importance in the present as compared with previous years

I have now put to you the position as far as my own knowledge and investigation allow me I am convinced in my own mind that the very earliest indication of undue irradiation is shown in the state of the blood, and that this should be made the basis of investigation in any proposal for life insurance Naturally, one who already has a definite dermatitis, with the possible risk of skin carcinoma, is not a fair risk, though there are very many people who have on the hands X ray warts from exposure years previously, but who, under present day protection, are fit and well and have no extension of the trouble, they have learned their lesson

THE HYGIENE OF TRAMP STEAMERS

FOR his presidential address to the Services Group of the Society of Medical Officers of Health, on Jan 27th, Dr J Howard-Jones, M O H of Newport (Mon.), took as his subject, Sanitation in the Merchant Marine, limiting himself to the tramp steamers of 300 tons and upwards Sanitation afloat was, he said, hampered by the division of responsibility, the port medical officers were responsible when the ship was in use, but the Board of Trade, though it had no doctor on its staff, passed the plans, and it was consequently difficult for the medical officer to get carried out on new ships the alterations that were necessary to provide good ventilation or other needed hygienic requirement The seamen of some foreign, especially Scandinavian, nations had by law better accommodation than had British seamen, so ships sold to those nations or to some of our colonies had to be pulled to pieces and the crew accommodation enlarged before they were allowed to go to sea under their new flags We had lost our pride of place as showing the world the best hygiene there was in ships For the dirty conditions on board the men were themselves responsible At the close of his address an informal conversation arose, in which the Board of Trade was criticised by some, but Dr W M Willoughby, speaking for the Port of London thought the Board had done well, in this present time of unemployed seamen, in causing as little expense as possible to ship owners Dr A Elder was satisfied with the action of the Board, which had adopted, without delay, all the improvements he had asked for in his book He thought men were less clean than before the war, they did not use baths when these were available, not even when hot water was supplied Differing from Dr Willoughby, he thought firemen kept their quarters cleaner than sailors Fleet-Surgeon W E Home said that, thanks to the work of Dr. Howard-Jones and his associates in the last 20 years, seamen were now housed much better than formerly, as he had had recent occasion to observe The men must learn to keep their quarters clean, he had never seen such a heavy infection with bugs as in a ship recently It was stated by an Australian doctor present that 120 cub ft, the statutory cubic space per man, covered in England both sleeping and living accommodation for the men (mess-room, bath room, &c), but the whole 140 cub ft for Australian seamen must be given to their sleeping quarters Prof H R Kenwood remarked that if things were as reported in that room the Board of Trade did not appear to realise that good hygiene paid It was desirable to convince the Board, and he sketched how this might be done Dr Andrew Balfour asked how it was that other countries had gone ahead in their regulations Was it that their men would not go to sea in bad hygienic conditions? No one provided an answer to this question, but it was suggested that bad hygiene and dirt kept good men away from the sea, and that the want of these good men lowered the average self-respect Fines may be imposed on seamen by the captain of a ship for keeping crew spaces dirty, but the Board of Trade, so it was stated by Dr Howard-Jones, discourages insistence on these fines

At the end of last week an outspoken debate on the question of seamen's working hours took place at the International Labour Office at Geneva Wide difference was expressed as to the need or expediency of making international regulations, but it is clear that sailors' organisations are alive to the necessity for ensuring that the conditions of service should be improved

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Webster's Test for T N T in Urine —We have been asked to state that the discoverer of this test was not the late Mr John Webster

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SHEFFIELD HOSPITALS AND THE COAL STRIKE —It was stated at the annual meeting of the Sheffield Hospital Fund Committee that the seven months' coal stoppage had resulted in a fall of £19,500 in the revenues of the Sheffield hospitals

Personal Observations
UPON THE
CLINICAL FEATURES OF POLIOMYELITIS.

An Address delivered before the Medical Officers of Schools Association on Feb 4th, 1927,

BY JAMES COLLIER, M D , F R C P LOND ,
PHYSICIAN TO ST GEORGE'S AND THE NATIONAL HOSPITAL, QUEEN-SQUARE

IT has been intimated to me that it would be as well for me to deal chiefly with the clinical aspect of this malady and I think the suggestion was wise; for a clinical observation well recorded always stands the test of time Nothing ever upsets it or makes it wrong It never leads us astray And every one of us, however little opportunity we may have had for observing this disease, may, from the observation of a single case or a few cases, make a record of a hitherto unobserved fact with an important bearing Upon the pathological aspect of this disease there is little that I could tell you which is not available to you in modern text-books There is an admirable summary in the Lumleian Lectures for 1916 by the late Dr F E. Batten, and since this work was published little except further confirmation of the views therein contained has been added, except the separation of the cases of the then undescribed "lethargic encephalitis," a few of which had crept into the cases described by Batten as cases of poliomyelitis The epidemiological and public health aspect of the malady bristles with difficulty and potential danger, with ignorance and paradoxes

DEVELOPING KNOWLEDGE OF THE DISEASE

When I first entered upon medical studies 40 years ago there was no suggestion that poliomyelitis was an infectious disease Twenty-two years ago Wickman proved that it was infectious by human contact only, and I think that his proof remains unshaken Now some of us think that poliomyelitis is not infectious so far as case to case infection is concerned, and that the future is likely to prove *that only* recent carriers can spread the disease There are many known facts and one has to marshal these epidemiological facts into some sort of working order One has, in fact, to make an hypothesis which will best fit in with the facts, and in so doing I have no doubt that the truth gets squeezed and distorted a bit and we are apt to turn a blind eye upon an obvious truth which does not fit in with the hypothesis But such an hypothesis, though most necessary and useful for the working moment, is apt to melt into thin air at the touch of a little more knowledge

We know well what poliomyelitis has done in the past, but who can say what it may do in the future? Will it disappear silently while we sleep and suddenly as chlorosis did all of one day from London Town where it had been endemic for centuries? Or will it treat us to an American epidemic? I suggest to you that it is not likely to play terrible havoc, unless it disappear first of all For we always have poliomyelitis in London every month of every year and are therefrom, I submit, a "salted" community Which of us who gained our knowledge of poliomyelitis long ago would have then believed it possible that in one relatively small district of the world 50,000 cases could have occurred in the space of a few years, culminating with some 20,000 cases, 5000 deaths, and 12,000 cases of paralysis in one autumn, in New York State in 1916, or that, in one small and isolated village in the west of England with a total population of 119 souls, 45 were seized with poliomyelitis in the space of a few days, every house having its two, three, or four victims—two of them being 16 years of age? This was in the Cornwall and Devon outbreak of 1910 Every form of the disease was seen in that village in that week I will ask you now to contrast this outbreak in Stoke Rivers village with another outbreak which occurred in the same year in the highly populous town of Edinburgh There were, I think, 62 cases all of the usual spinal type There were no abortive cases. No two cases occurred in any one family or in any one street Case contact or family contact could be absolutely excluded in all but three of the cases. Headache only occurred in six of the 62 cases The contrast is very striking Forty-five cases out of 119 people with every type of the disease in the one case with clear contact in every case; and 62 cases in 420,000 with *one type of the disease and with* contact absolutely disproved in nearly all the cases in the other These two epidemics were reported on the same evening before the Epidemiological Section of the Royal Society of Medicine and the attitude of the audience was very different to the two reporters. They patted the Devon and Cornwall man on the back and said his was excellent work Certainly he had a very inspiring experience and had managed to get the help of Levaditi in Paris and had the virus of his epidemic proved. Moreover, the little village outbreak to which I have referred was only one of many local outbreaks which he was able to observe But the audience were positively rude to the Edinburgh man. They said his report was not worth listening to, and that from an epidemiological point of view it was of little value, and even suggested, I think, that if he had had the capacity of looking properly, he would *have found abortive cases and would have done* more successful tracing. I suggest to you that both these reports *were of the highest interest as examples* —the one of poliomyelitis running riot in a susceptible community following a carrier epidemic; the other of poliomyelitis, epidemic upon a highly salted community with multitudinous carriers I have put them before you to impress you as strongly as I can of the vagaries and possibilities of this disease and to hint at a possible explanation

THE CEREBRO-SPINAL FLUID

Dr J G Greenfield, our distinguished pathologist at Queen-square, will tell you that he will put us right about the diagnosis of poliomyelitis in the acute stage from his examination of the cerebro-spinal fluid in 100 per cent of our cases I think 98 per cent would be a more just estimate Lumbar punture is therefore a most helpful measure in making a correct diagnosis of poliomyelitis from the earliest appearance of the symptoms until several days after pyrexia has disappeared It is also often a dramatic means of removing, and permanently *removing*, some of the most distressing symptoms such as the headache and head retraction and the bodily pains and sometimes it seems to relieve the pyrexia immediately. Whether its performance and repetition have any effect in lessening the severity of resulting paralysis or averting death I cannot say, but what I can say is that it does no harm and can always be performed without any distress to the patient whatsoever, if a fine hypodermic needle and a few drops of 2 per cent novocaine solution are previously employed

Just now and again lumbar puncture fails you in the diagnosis of poliomyelitis May I give you the bare details of two such happenings which have occurred to me recently

The first was that of a lad, returned from public school as a contact Forty-eight hours after leaving school and when playing golf he was seized with a severe headache. I saw him that evening with a temperature, a *pink skin and* headache, nystagmus and head retraction, and with the right abdominal reflexes and the deep reflexes of the legs absent The lumbar puncture gave a completely negative result The M O H was notified by the doctor before we knew about the C S F The M O H subsequently pressed me to certify this case personally as it concerned a public controversy The patient was by this time apyrexial and convalescent, and I was in a bit of a tight place *for an* absolute proof of my diagnosis, so I did another lumbar puncture and found the C S F quite typical of poliomyelitis.

Do not let this case lead you to suppose that the fluid when normal early on always becomes diagnostic later. Here is the disproof —

I saw recently a little girl on the fourth day of her illness with the pyrexia almost gone and practically convalescent I pronounced this case to be a typical abortive case The cerebro-spinal fluid was absolutely normal But her brother, who was in the same house at the time, subsequently went down to the paralytic form of the disease

These are the only two cases that I have seen in which the cerebro-spinal fluid has been even temporarily normal The characteristics of the cerebro-spinal fluid in poliomyelitis are that the albumin-content is increased and that it contains cells in excess with normal sugar and normal chlorides and that it is sterile on culture But whether the cells are lymphocytes or polymorphonuclears or mixed or in what numbers they exist does not seem to have any relation to the type of the disease or to its severity or to the prognosis My pathologist reports "this fluid is indicative of a very severe infection," and the case turns out a mild one and completely recovers. Or he reports "a mild infection" and a fatal issue ensues forthwith I think that when all the cells are found degenerate the result is usually very favourable

CLINICAL PICTURES

Wickman, among his 1500 cases in the Swedish epidemic of 1905, described the clinical pictures of these patients under the following names the carrier; the abortive case, the neuritic case; the spinal case, the spreading spinal case (ascending or descending or both), the meningeal case, the brain-stem case, the cerebellar case, the cerebral case, the mixed case

This classification of Wickman's has been sneered at as neither a clinical nor a pathological classification and therefore unscientific, but it is nevertheless a most useful aid to memory and thought. One sees all these types and no one has as yet made a better classification I will explain to you presently three other types which I think are worthy of emphasis, and will now say a few words about each of these types

The Carrier

The carrier is not a hypothetical individual for he has been caught and caged after infecting others, and his virus obtained, cultured, and a chain of monkeys infected from this with typical clinical and pathological results Sometimes this carrier himself succumbs to the disease as did Taylor and Amos's carrier In this respect poliomyelitis is like meningococcal meningitis where 4 per cent of the carriers succumb But it seems probable that in poliomyelitis far fewer of the carriers are invaded All the carriers seem to gain immunity I think that the carrier is much more virulent as soon as he begins to carry and that his virulence thereafter wanes and dies out in a comparatively few days Perhaps it is the carrier alone who infects, and certainly it is a chain of carriers who perpetuate the disease and carry it over from season to season and give rise now and then to the sporadic cases of the disease which occur in London, for example, every week of every year His virulence is also dependent upon contact with high susceptibles and he is probably an important agent in "salting" the community

Carriers are probably much more numerous than cases of poliomyelitis Kling, Pettersen, and Wernstedt examined six families in each of which there was one case only and found 18 carriers among the non-affected members—a proportion of three to one

It may be of interest to tell you a good story of a carrier

A farmer in the West Country sold a horse to another farmer at a market town, and according to custom delivered the horse at the farm of the purchaser some 15 miles away a day or two later He left home with his child ill with poliomyelitis Having delivered the horse he took a meal with the purchaser and sat at table between two children Within 48 hours both these children were ill with poliomyelitis and within 72 hours their mother and another child were infected This farmer was surely the carrier who had infected his own child

The question of a carrier is sometimes of prognostic importance, as in the following example —

I was called in August last by Dr H Fraser of Harpenden to see three children of one mother all very ill with poliomyelitis and still pyrexial There had been no cases in Harpenden before these occurred, nor were there any afterwards In reply to the mother's question of distress as to whether her other child in the house would take the disease, I said certainly not Immune, when all the others went down, this child was very likely the carrier

The Abortive Case

The case that I am about to describe to you is typical of nearly all those which I have seen in the present epidemic period I am taking as abortive cases only those which show definite involvement of the nervous system I have seen a great many abortive cases I well remember having it myself at the age of 9 years and shall never forget the "machine gun" headache and stiff neck nor what my miserable limbs felt like after I remember my sister having it in our nursery at home and the consternation of us children that for days she could not stand upon her legs I remember my son having it and my physicians cheering me by diagnosing tuberculous meningitis

A boy was removed from an infected school at Broadstairs by his parents and brought to London I saw him the following day looking the picture of health and eating heartily Twelve hours later the temperature rose and remained 99 5°–100 5° F. for 24 hours, the boy feeling as well as possible, eating heartily and with no catarrh, throat, or discomfort Then his head began to ache violently, the worst headache he had ever had I saw him within two hours of the commencement of the headache The temperature was 104° He was then very pink—almost pink enough to suggest scarlet fever, but pink all over and without any puncta He lay with head retracted and neck stiff, and any attempt to flex the neck gave him severe pain in the spine down to the sacrum Kernig's sign was well marked He said he felt quite well but for the headache There was very marked nystagmus The pupils were unequal and the right one, which was the larger, reacted badly When he held his hands up they showed conspicuous little jerky movements of fingers and joints which he could not control and which are very characteristic of the disease The abdominal reflexes were absent, as were also the deep reflexes in the arms His breath smelt peculiarly nasty I drained off all the cerebro-spinal fluid I could get—some 2 ounces It was typical of the disease The drainage instantly relieved his headache which did not return It also relieved his head retraction He was quite convalescent three days later with the disappearance of all his physical signs, but for a few days he said that he could get no push into his muscles

Nearly all the abortive cases that I have seen have been just like this one with pyrexia, headache, signs of meningeal irritation, nystagmus, jerks of the limbs, and some loss of reflex action superficial or deep, and occasionally some loss of power Other signs met with have been catarrh of nose and throat vomiting, diplopia, and convulsion I have not met with the profuse sweating nor the severe diarrhœa which have been prominent in other epidemics Doubtless there are much milder types of the abortive form than that I have just described to you, and in the severe epidemics Wickman and other workers have proved cases of mild fever without any nervous signs at all to be cases of poliomyelitis If such cases occurred at Broadstairs they were very rare Perhaps I saw one at Broadstairs but I did no lumbar puncture and disregarded it

The Spinal Case

The spinal type of the disease in its usual form is so well known to you as to make description superfluous I need hardly emphasise the frequently occurring cases where the thoracic spinal cord is solely or chiefly implicated, giving rise in the end to spinal curvature This disease is by far the commonest cause of scoliosis and kyphosis and is often overlooked as a cause for these conditions But there are several peculiar varieties of the spinal type which deserve special mention Here is one of them

More than 30 years ago a man aged 22 years was admitted into the National Hospital under Dr Thomas Buzzard, pyrexial and completely paralysed in all four limbs and in the lower trunk There was no affection of sensibility nor of sphincters The diagnosis of poliomyelitis was obvious I found that all his reflexes, both superficial and deep, were present, and I was greatly surprised and communicated my surprise to Dr Buzzard who at once said, "You will find that this patient will make a complete and dramatic recovery" This patient did make a rapid and complete recovery

This autumn Dr F H Watson sent me to St George's Hospital a child from Sheerness paralysed in all four limbs with poliomyelitis, saying that he was tired of hopeless cases of this disease and would I relieve him for a time of this one I found notwithstanding the paralysis of five days' duration, that all the reflex action, both superficial and deep, was present I said to my students, "this child will recover rapidly and completely," and notwithstanding great disbelief on their part, we returned this child to Dr Watson in four weeks perfectly well, having brought about this miracle by doing nothing except a lumbar puncture to confirm the diagnosis

Such cases as this with retention of all reflex action always do recover perfectly and rapidly It is important that you should know this, though it will worry you in your accepted notion of the pathology of the disease But you must not think that from what I have said recovery does not occur when the reflexes are lost It often does sometimes completely. sometimes partially

Another unusual spinal type which may puzzle you is that of acute transverse myelitis I can make this plain to you in a very few words Imagine a severe local dose of poliomyelitis virus delivered from the intestines along the ninth dorsal nerves into the small dense ninth dorsal segment, where there is little grey substance to matter The result is intense inflammation with swelling of the segment so great as to compress all the tracts and abrogate all function below the level of the lesion with paralysis of motion, sensation, and sphincters, below the umbilicus But the paralysis is not for long a flaccid one It soon becomes spastic with extensor responses and increased reflexes It usually makes good recovery when the swelling abates Rarely it leaves complete transverse destruction of the spinal cord Here is a good example I was called by Dr T Gardner in October last to see a lady at Brighton She had been to a dance on a Saturday, where she met her carrier On Monday she was seized with the most severe headache of her life On Wednesday morning she woke having lost all power and feeling in the legs and with complete retention of urine She had the common meningeal signs of the disease, with those of a transverse lesion of the cord The cerebro-spinal fluid was typical She was obviously regaining sensibility when I saw her a few hours later, and therefore I made a very cheerful prognosis which has been justified

The Neuritic Case

The *neuritic type* of poliomyelitis is nothing more than some variety of the spinal type in which there is great pain and tenderness in the *paralysed region* Sometimes the pain and tenderness is so great as to increase the apparent paralysis to completeness It is a most fascinating variety of the disease from the pathological view It does not seem to make a very bad prognosis, nor to occur with the completely paralysing varieties of the disease The muscles are as tender to pressure as those of an alcoholic neuritis, hence the name neuritic type," *any attempt at* stretching the affected muscles by passive movement produces agony Some of us think the joints are also inflamed Contracture of an early kind is likely to follow this type and the more so because you cannot splint or stretch because of *the pain* This neuritic type is sometimes troublesome in diagnosis I have many times been called to cases of acute rheumatism as cases of poliomyelitis because of the apparent paralysis that the pain may cause and vice versa, but you will remember that pain always increases the reflexes both superficial and deep whereas poliomyelitis generally abolishes them The following case of difficulty may interest you in this connexion

I was called recently by Dr De Vere Hodge, the M O H at Woodford, to see a case notified as poliomyelitis in an institution containing several hundred boys A boy three weeks convalescent from poliomyelitis had recently been admitted and had slept for some days in the same room as the patient The patient had been taken ill a few days before with severe diarrhœa with copious watery evacuation lasting 12 hours There had been no pyrexia and no headache Next morning he had bad cramp *in the legs followed* by continuous severe pain in all four limbs with extreme tenderness and pain on stretching His arms had recovered when I saw him, but his legs he could not move. All the reflexes were increased, and the agony I gave him in obtaining these brisk reflexes was obvious reason why he could not move this legs

Now here was a difficult case for the doctor in *charge A contact* with an undoubted case of poliomyelitis Apyrexial cases of poliomyelitis certainly do occur. Diarrhœa at the onset is in all the books as a well-known occurrence in the disease The tenderness, pain, and agony on passive movement were exactly like what one sees in poliomyelitis No wonder the medical officer notified the case However directly I had examined this case, and before the cerebro-spinal fluid had been examined, I turned this case down as certainly not a case of poliomyelitis, on these grounds I am an utter agnostic of case-to-case infection in this disease and even for a believer if such a person exists the period was much too long Apyrexial poliomyelitis bids you be very sure before you make a diagnosis Severe gastro-intestinal upset may cause acute tetany and a host of other queer muscular troubles. I have never seen cramp in poliomyelitis, nor the *reflexes* universally brisk The cerebro-spinal fluid proved normal in this case

There is one suggestion I wish to make with regard to children who are brought to you with the complaint that they have gone weak on the legs and fall unduly and are *unwilling to walk You find a healthy child* with no physical signs and cannot explain the condition Such children always recover in a little time I have seen this condition succeed definite abortive poliomyelitis so many times as allow me to suggest that this is a reasonable cause in all the cases I have one of the Broadstairs boys under my care at present who was an abortive case, and for a long time went lame on one leg when he got tired Yet never could I find the least trace of weakness in any muscle

The Spreading Spinal Case

The spreading cases are of the Landry type, ascending or descending, or both. Usually in poliomyelitis when you are called to a case after the spinal paralysis has developed you are able to say with certainty that the worst is over and that nothing but improvement will subsequently follow. But before you do this make quite certain that the paralysis is stationary Ask the patient how the weakness compares with what it was two or four hours ago, or wait some hours with the patient and see for yourself Otherwise an innocent-looking lower limb paralysis may creep up and involve trunk, arms, and respiration and prove fatal I have never seen it spread when once it has remained the same for hours It spreads rapidly sometimes the increase is obvious from minute to minute I remember spending the night with Dr F S Lloyd, of Luton watching the paralysis spread from the legs to the trunk and then to the intercostals and arms Then the diaphragm failed and for nearly an hour he breathed with his neck muscles Then we noticed the diaphragm come in again and then the intercostals, and before we left him we were safe as regards death This patient made a complete recovery The *spreading* cases seem to be peculiar to some seasons I have not seen a single case during 1926 In the autumn of 1924 nearly every case I saw was of this type and almost all of them were fatal

The Meningitic Case

You will say at once that I have already described the meningitic form of the disease in dealing with the usual abortive case in which the signs are so largely those of meningitis So I have, and this is what I take it most of the epidemic observers have called the meningitic type. But the following case will tell you of something much more startling and something which was entirely new to me.

It was a case of Dr M O. Raven's at Broadstairs—a boy who had come home from school five days before with a bad headache and a temperature He soon developed diplopia and head retraction. When I saw him his temperature was low He was deeply unconscious with the eyes open and with complete incontinence He was very thin, white, with retracted abdomen, and stiff extended legs with increased jerks everywhere and extensor responses A typical picture of a dying tuberculous meningitis I said to Dr Raven that I was sure it was tuberculous meningitis I said to the boy's mother "I do not think that your boy has the disease which is about the town, I fear that it is another much more fatal disease, and if it is, I can give you no hope, but if it is the disease that is about the town I think he will get better." So sure was I that he would die of tuberculous meningitis that I made the alternative prognosis rosy to comfort the woman. I took the C S F back with me with the following result chlorides normal, therefore it was not tuberculous meningitis, sugar normal, therefore it was not any form of bacterial meningitis, culture sterile and fluid characteristic of poliomyelitis This lad made a rapid and nearly complete recovery, and a fortnight later was well but for a slight weakness of one deltoid

In this case I had unexpected and entirely undeserved luck in prognosis

The Brain-stem Case.

This type of case I leave undescribed because I have never seen one, and because I am unconvinced by any descriptions of such a condition which have been made I know that lethargic encephalitis loves the brain-stem and basal ganglia, and it is obvious that the cases of brain-stem poliomyelitis which Batten published in the Lumleian lectures of 1916 were examples of lethargic encephalitis which was, at that time, an undescribed disease You surely would not have me describe the nystagmus, diplopia, pupil changes and peripheral facial paralysis of poliomyelitis as a " brain-stem " type, since they are met with as transient symptoms in any type of the disease and are important in diagnosis only They are, of course, indicative of a mild involvement of the brain-stem Such symptoms do not seem to be on the same footing as the limb paralysis, they always get better Moreover, the facial paralysis sometimes involves loss of taste and therefore cannot be due to a nuclear lesion It is interesting to read that ordinary Bell's paralysis is much more prevalent when an epidemic of poliomyelitis is incident, but on this subject I have no knowledge

The Cerebellar Case

This is strikingly unlike the other forms of the disease It is a matter of an acute onset of cerebellar ataxy following headache and pyrexia The following case was a beautiful example '—

A public school-boy on returning from a walk fell out 200 yards from home saying that he could not get home because his head was so bad He was carried in and placed in a chair where he collapsed, not mentally but physically This was the flaccidity of acute cerebellar disease A diagnosis of a " touch of the sun " being made, he was carried to bed where he went to sleep Next morning no one could understand his speech, it was so wildly ataxic He could not sit up or guide his limbs, and he was sick when his head was moved He had only a slight temperature I found him with the most extensive nystagmus, speech ataxy and bilateral ataxy The C S F was typical of poliomyelitis I brought him back with me to London, and observed day by day an ever quickening disappearance of all his symptoms He was quite convalescent in six weeks

This will impress you with the very great recuperative powers of the cerebellum if the lesions are not too severe

The Cerebral Case

In this type severe and repeated convulsion usually follows upon pyrexia and headache, sometimes fatal in a very few hours as in the first fatal case at Broadstairs, sometimes lasting many hours or days, and merging into lengthy subcoma from which the patient gradually rouses to show some cerebral defect, mental, diplegic, hemiplegic or hemianopic, or perhaps to recover completely It is usually held to be the common case of hemiplegia in a child following convulsions. Sometimes the hemiplegia or other sign of cerebral involvement comes on very quietly even in the conscious state, as in a case which I saw with Dr W. Pitt-Payne of Bromley, who called me to see a boy with an obvious meningitis but who seemed so well and so little distressed by his illness that doubt had arisen as to what was the matter When I arrived I pointed out to Dr Pitt-Payne that the boy had a complete left hemiplegia The doctor was astonished for he had examined the boy some two hours previously and found no hemiplegia But there it was, a severe hemiplegia too It had come on in a perfectly conscious boy who was not feeling ill The cerebro-spinal fluid was typical and this case made a complete recovery.

The Relapsing Case

I must now refer, for a moment, to cases in which the patient seems to become apyrexial and convalescent, and after a few days redevelops symptoms sometimes of alarming severity It is a matter of a second blaze of infection which has remained alive within the tissues I think that you may perhaps anticipate the occurrence of a relapse by an unusually flat-topped temperature chart in the first few days, and by the fact that the so-called apyrexial interval contains little sudden jumps of temperature which suggest continued infection, instead of the usual rapid blaze, high peak, and rapid fall of temperature Now whatever the books may tell you about dreadful results in a relapse, I have never seen any harm occur, no occurrence of paralysis, and no increase of paralysis Indeed, in a case which I saw with Dr Pollock a short time ago with an eighth day relapse with very high fever and great restlessness and headache, it was obvious that the paralysed legs were improving continuously in spite of the relapse

The Mixed Case

It is amazing how rarely one sees a case of polio myelitis in which the types are mixed, and this is why for so many years the spinal, meningeal, cerebellar, and cerebral forms were described as separate diseases But the epidemics in which the several types are seen much more often, and the pathologists have settled that all these clinical pictures result from one and the same infection I suppose the explanation may be the curious local advent of the virus to the nervous system from the mucous membranes by way of the nerves only, as in rabies and tetanus, and the rapidly acquired immunity which may keep the disease local But one does see mixed cases Some years ago a little girl was admitted into St George's Hospital, under my colleague Dr J A Torrens, with right hemiplegia, atrophic paralysis of the left leg, and peripheral facial palsy of the left face Here were the spinal, cerebral, and brain-stem types altogether

As my last clinical example let me describe to you a case that might be justly called one of general poliomyelitis

A man belonging to London, aged 26 years, was admitted under my care at St George's a few weeks ago with the story that on the Tuesday of a certain week he developed a bad cold and felt ill On the Thursday he felt better and returned to work, but developed diplopia for which he sought his doctor on Sunday morning The doctor, finding him pyrexial and with diplopia, sent him to hospital where he gave a detailed and accurate account of his illness, during Sunday night he lapsed into unconsciousness, and on Monday I could find nothing alive at all in his nervous system except miserable attempts at respiration Consciousness, pupil reactions, swallowing, coughing, reflexes, sphincters—everything gone The whole nervous system killed out quietly in 24 hours He had a large patch of pneumonia by this time The cerebro spinal fluid showed a high polymorph count, so we thought of acute pneumococcal meningitis as a well-known rapid destroyer But the cultures were sterile Lethargic encephalitis was mentioned, but was impossible for no polymorph has ever been found in the cerebro spinal fluid in that disease Moreover, I have never seen lethargic encephalitis knock the spinal cord out as a whole My pathologist at the autopsy found the whole nervous system bright scarlet in colour, and said at once lethargic encephalitis I said "no," this is poliomyelitis The sections subsequently showed an acute inflammation of the whole central nervous system, and in the perivascular lymphocytic exudation of that inflammation were the multitudinous polymorph cells which are characteristic of poliomyelitis and which alone distinguish it from the inflammation of lethargic encephalitis and the inflammation of syphilis

This was the most severe case of poliomyelitis that I have ever seen or heard of.

The Apyrexial Case

One word with regard to cases which show no pyrexia or headache and are therefore difficult for the doctor, for I have one at the present time, paralysed in the legs, which occurred at Broadstairs last July though it was not notified, and which seemed to me to show that the Broadstairs epidemic did not come from Brittany as many supposed when it appeared in October, but that it came from Broadstairs The apyrexial cases without headache are rare in my experience. I believe that they only occur in sporadic cases, and mean infection in a partially protected subject They do not occur in the epidemics They are always of the pure spinal type like most of the sporadic cases They seem to be much less common of recent years, for Allen Starr, writing of a large number of cases years ago, says that 30 per cent of them were apyrexial, whereas I have certainly not seen half a dozen apyrexial cases in my life. One has to remember that poliomyelitis is certainly increasing in virulence Allen Starr did most of his work before epidemics of the disease were common, and I have had experience of a considerable epidemic period

Rashes

A great many rashes have been described in poliomyelitis, none of them very usual I am not here referring to the pink skin upon which I have laid some stress as a rash But there are two rashes which are worthy of mention One of these is herpes zoster, which has been reported many times It is what one would expect, for I cannot believe that the inflammatory lesion of poliomyelitis never invades the roots and the root ganglia I think that there is strong clinical evidence that it does in some cases, as, for example, those with peripheral facial palsy with loss of taste But I personally have never seen it nor have I seen the scars of zoster on any old case of infantile paralysis that I can remember The other is a striking rash of most peculiar appearance and distribution consisting of large bluish-purple papules, not collected in bunches and distributed over the paralysed region only I have seen this rash quite half a dozen times The first time I saw it was years ago in a nurse at the Hither Green Fever Hospital, who was pyrexial with a severe paralysis of the right arm and shoulder which upper limb and shoulder were smothered with the papules I have described The last time I saw it was the other day at Harrow with Dr S H. A Lambert and Dr. C F Mayne in a fatal case of paralysis commencing in and chiefly affecting the whole trunk The whole back and sides were covered with a similar rash which had been attributed to the use of a liniment for pain You may say this was herpes zoster and perhaps it was a rash of the same pathogeny Yet though I know and have seen that herpes zoster may look like anything from an erythema or a purpura, or a papular rash to the fully developed lesion, yet it has always had a characteristic corymb-like distribution in patches, and that has not been the case with the eruption which I have just described

SOME DEDUCTIONS

I hope I have not wearied you with much clinical detail but it is important and upon it has been based most of our knowledge of the disease and all the inspiration which Wickman brought to his pathologists and which led to the sound bacteriological and pathological understanding which we have of poliomyelitis One word of comfort to you as medical officers in charge of schools This disease does not like schools, institutions, and large towns It has been said that it will not spread in institutions In one of the bad epidemics in America during a raging season, 45 schools of the infected locality containing 3600 children of the most susceptible age were kept under observation and only one case occurred At the Hospital for Sick Children where pyrexial cases of poliomyelitis are often received, no case has been recorded of spread of the infection to another child Dr. Batten, who had a 30 years' experience of Great Ormond-street Hospital went into that point with his characteristic thoroughness and vouches for the fact Let any one of you who holds to case-to-case infection in this disease explain such a fact Take what happened at Broadstairs in the schools, all the many cases occurring in the blaze of a few days and then no more cases. There was no case-to-case infection Look at the results in the Broadstairs preparatory schools as compared with what was happening in the town True we had two fatal cases before the malady was discovered, and one in a lad who was immediately removed by his parents to the depths of the country Otherwise one trivial case of slight paralysis was the only bad result. There were plenty of cases of bad paralysis in the town This was because poliomyelitis does not like schools and will not be virulent in schools

May I commend to your notice who are especially interested in community infection, epidemics and disease to the fascinating work of W W C. Topley and M Greenwood upon community disease in rats[2] and the exhilarating work of Surgeon-Commander S F Dudley on invasion,[3] carriage, and salting which has just been published by the Medical Research Council, both of which will help you much in the understanding of epidemic disease

The work of Topley and Greenwood has been carried out with infectious diseases in communities of rats They draw these conclusions.—

(1) If you keep a herd of infected rats strictly isolated you will in time perhaps in a short time, get rid of the infection

(2) But if you allow a few unsalted immigrants to dribble into the infected herd from time to time you will never get rid of the infection

(3) The effect of every addition of susceptibles is to raise the virulence of the infection, and in time the hitherto immune members of the herd succumb and at last even those who have recovered from the original infection succumb to the ever-increasing power of the infection

(4) It is a much safer thing for the herd to introduce a thousand susceptibles in one day than to introduce ten a day for a hundred days, for the obvious reason of the ever-rising virulence which repeated ingress causes

From these conclusions it would follow that we should keep our infected communities together and allow no ingress if we wish to break a community epidemic.

Surgeon-Commander Dudley's work has been done upon humans in schools and depôts and he has reached the same conclusions He says: If any one of us is exposed to an infection emanating from the respiratory passages—he calls it "droplet" infection—one of three things must happen: (1) we become invaded and develop the disease or (2) we become carriers of the disease or (3, we become "salted" or immune to the disease Which result will happen will depend. Dudley argues upon three variable factors first, the amount of infective material received by the host per unit of time second, the rate at which the infective material can be destroyed by the host: third, the rate at which the microbic proteins stimulate or depress the immunity mechanism of the host. These factors being equal the result will depend upon the distance of a susceptible host from a distributor of infection as to whether the former becomes a case, a carrier, or immune

There is another important factor in the wax and wane of a community infection and that is bacterial variation in response to changes in the herd immunity, and this will explain the dying out of a community infection despite increasing numbers of carriers and despite the continual introduction of fresh susceptibles as happened at the Greenwich Naval School with a diphtheria outbreak Dudley thinks that carriers acting in a suitable environment may prevent great disease outbreaks by supplying sub-infective doses to the more susceptible members of a population, and in this way the general resistance to epidemic disease is increased and the herd is vaccinated by its carriers This work has possibly a most important bearing upon poliomyelitis, for we know well that an epidemic of this disease in a community clears out all the susceptibles and leaves the community immune When another epidemic affects that community only those born after the previous epidemic are affected It seems to me that Dudley has suggested a likely explanation of the means by which this immunity is attained

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[2] Milroy Lectures 1926 THE LANCET, 1926, i 477, 531

[3] THE LANCET, Jan 15th 1927, p 139

An Address

ON

POLIOMYELITIS.

Opening a Discussion held at the Medical Society of London on Feb 7th

BY F M R WALSHE, MD, DSc, FRCP LOND,

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ALL those of us who have had to deal with cases of acute poliomyelitis will have learned to regard seriously a disease which lays upon us such heavy responsibilities Not only have we difficulties of early diagnosis to contend with, and questions of treatment in which each case presents its own special problems, but there arise urgent questions of public health in the dealing with which there are no generalisations upon which we may safely rely There is certainly no acute specific fever in which the patient is so profoundly dependent for the degree of his restoration to activity upon the unremitting and skilled attention of his physician for months or even years after the short-lived infection has burnt itself out

In my brief contribution to the discussion which it is my privilege to open, it is manifestly impossible to deal with every aspect of the malady, and I need not apologise therefore for inevitable gaps in my remarks I shall content myself with an attempt to give a clinical conception of poliomyelitis as a whole, to indicate the lines of treatment of its various phases, and to summarise what is best established in respect of its epidemiology

THE CLINICAL PICTURE

In acute poliomyelitis we have an acute specific fever, a systemic infection, which may or may not proceed to invasion of the nervous system by the virus responsible It occurs sporadically and epidemically The complete clinical expression of the disease consists in a short-lived initial phase of constitutional disturbance followed by signs of invasion of the subarachnoid space and by those of involvement of the nervous tissue itself It is in the last that the specific lesion of the disease is produced But as long as 20 years ago the conclusion was reached by the Swedish observers of the disease in its epidemic form that an appreciable proportion of patients recover from the infection without developing paralysis, a conclusion which more recent investigations in America has amply confirmed, and G Draper may be taken to express the general view when he states that these so-called "abortive" cases may number from 50 per cent upwards of the total case incidence in any given epidemic We are in a position to say that these conveniently, if somewhat loosely termed, "abortive cases" depend for their occurrence upon the dying-out of the infection, either on the completion of the phase of general infection, or even after invasion of the subarachnoid space, but before the virus has gained access to the neuraxis itself

It is customary to speak of poliomyelitis as presenting two clinical phases, one of general and a subsequent one of nervous system involvement I submit, however, that a more precise as well as a more practical conception of the malady is obtained by recognising the existence of three clinically and pathologically distinct stages in its evolution one of general infection, one of invasion of the subarachnoid space and a third of invasion of the central nervous system itself It is only when the last occurs that paralysis ensues Each clinical phase has its corresponding pathological substratum During the general phase the virus obtains lodgment in the liver, spleen, lymphatic glands (and in the experimentally produced disease at least) in the bone-marrow, in all of which tissues lesions are found Secondly, the virus reaches the subarachnoid space by a channel to which we have to refer later, giving rise here to a characteristic meningeal reaction as revealed by examination of the cerebro-spinal fluid Finally, it may obtain lodgment in the grey matter of the central nervous system producing there the familiar inflammatory lesions

The study of the disease, therefore, in its epidemic form has served usefully to turn our attention from a too exclusive consideration of the ensuing paralyses to its preparalytic stages It is clear that if we could with certainty recognise and effectively scotch the infection at this period, we should deprive it of its terrors, since death when it occurs, like disablement, is the result not of general toxæmia but of nervous system involvement

The Phase of General Infection

Turning now to a brief consideration of the first of the preparalytic phases, that of general infection, we may say that it is very short-lived, lasting for from a few hours to three or four days The constitutional reaction may be so slight as to escape notice or may be of considerable briskness It does not as a rule present features by which we can identify it with certainty, although during the course of an epidemic the reaction may be of so uniform a quality as to allow the alert observer to suspect the character of the infection with which he is dealing Fever is the most constant component of the clinical picture, the temperature rising to 101° or 102° F The child suffers from malaise, and behaves in the manner customary with the febrile child Such local symptoms as develop appear to vary from epidemic to epidemic, and tend to conform to one of three main types a gastro-intestinal with vomiting and less frequently diarrhœa, a tonsillar with signs of faucial inflammation or a coryzal with symptoms of upper respiratory manifestation Whatever form the symptom-complex may take we may regard it as indicating the fully established general infection and not merely a prodromal stage Occurring in an uncomplicated form, this stage is free from symptoms of meningeal invasion, and the cerebro-spinal fluid is normal in character

The Stage of Subarachnoid or Meningeal Invasion

The onset of the stage of subarachnoid or meningeal invasion stands in a somewhat variable time relationship to that of general infection In certain severe cases the two phases may develop synchronously, or they may overlap, signs of meningeal invasion developing before those of general infection have abated, or finally, there may be a pause of from a few hours to a day or so between them When such a pause occurs, and while it endures, the child is generally assumed to have recovered from some trivial febrile disorder

Like the constitutional reaction, the meningeal reaction varies in intensity, being at times unnoticed at others of great violence. It is of even shorter duration, ending in recovery, or passing into the final phase of nervous tissue involvement within a few hours. The clinical components are fever, headache, pains in the back and limbs, rigidity of the spine with resistance to passive flexion, the so-called "spine sign" of American observers, muscular twitchings, and a peculiar starting jerky tremor when the patient is handled or makes voluntary movements. In severe reactions there may be head retraction, opisthotonos, and the combination of drowsiness with irritability, or even deep stupor. It is obvious that one or more of these components may be lacking in the individual case, but headache, the spine sign, and pain in the back and limbs we may regard as constant. During this phase examination of the cerebro-spinal fluid reveals the presence of a meningeal reaction. On lumbar puncture the fluid escapes under pressure, and is clear except when great excess of cells renders it opalescent. The cell content is constantly increased, the count ranging from 30 or 40 to 2000 cells per c mm. Early and very transiently polymorphonuclear cells predominate, giving place within a few hours to a lymphocytosis. As this change occurs the globulin content of the fluid tends to rise, the glucose and chloride readings remaining normal. Examination of the blood at this stage reveals a leucocytosis in most instances, the total white cell count rising as high as 25,000. There is a relative predominance of polymorphonuclear cells.

Even although such a meningeal reaction occurs, indicating as it does the invasion by the virus of the subarachnoid space, recovery may yet ensue without the development of paralytic phenomena, such cases constitute the so-called meningitic form of the disease.

The Appearance of Paralytic Phenomena

However, once the virus establishes itself within the nervous system, paralytic phenomena which vary with the localisation and intensity of the lesions make their appearance. The most acceptable classification of the clinical pictures resulting is one that comprehends cerebral, cerebellar, brainstem, spinal and a less certain neuritic form. Of these the spinal form is by far the commonest. In this paralyses of varying intensity and extent make their appearance with a suddenness which is all the more dramatic when the two preceding stages have been unnoticed or unrecognised. The generalisation that paralysis is always sudden in onset and maximal at this moment has its exceptions and in some cases the paralysis may ascend until it ends in respiratory paralysis, or may proceed from limb to limb in a series of jumps.

Of the paralyses themselves it is scarcely necessary to speak here, but certain aspects of the clinical picture may be mentioned. Of the total number of muscles initially affected the majority are but partially paralysed, and there occur cases in which a large number of muscles are but slightly impaired in voluntary power and none is profoundly paralysed. Such patients present an appearance of generalised slight weakness which may be mistaken for a post-febrile or a post-influenzal debility, so that the nature of the malady may be entirely overlooked from beginning to end. Such generalised weakness may be transient lasting for a period of days only, but when it occurs a systematic examination of the tendon jerks and of movements at all joints will generally reveal the existence of a local incidence of the disturbance, and thus betray its nature. In another group of cases, where both legs are profoundly or completely paralysed at onset, a period of two or three days' retention of urine is not uncommon. Again, in other cases with severe and extensive cord lesions, the white matter of the antero-lateral columns may be involved with the appearance of unilateral or bilateral Babinski plantar responses.

Pain is another frequent accompaniment of paralysis in the affected muscles. It may vary from slight pain on movement and manipulation of but a few days' duration to intense and widespread pain lasting for several weeks. It is possible that pain has a certain prognostic value in respect of the muscles in which it occurs. Careful examination will generally reveal that not all muscles are tender to pressure or painful on movement, and it has been my impression that in the early days of the illness, of a number of profoundly or totally paralysed muscles, those which are painful to pressure or manipulation are those which earliest show signs of recovery and regain power most rapidly, while those which are totally paralysed and painless are those which the subsequent course of the case will show to be permanently paralysed. During the first two or three weeks prognosis as to recovery of power is always difficult, and should experience prove this impression to be accurate, pain and tenderness may be a sign of definite prognostic value.

From what has been said of the preparalytic stages of poliomyelitis, it is clear that diagnosis at this period depends upon the recognition of the signs of subarachnoid invasion which I have enumerated. It must be confessed, however, that unless in the presence of an epidemic, or of well-developed general and meningeal reactions with the characteristic intermission between them diagnosis before the appearance of paralysis is likely to remain exceptional.

TREATMENT

When we come to consider questions of treatment it is clear that the pre- and post-paralytic stages of the malady present two distinct problems. During the former and the early days of the latter stages the infective character of poliomyelitis calls for appropriate measures, but an even more urgent problem arises during the preparalytic period, that of arrest of the infection before invasion of the central nervous tissue.

The Preparalytic Stage

Assuming that a diagnosis has been made with reasonable certainty at the onset of subarachnoid invasion there remains at most but a period of hours in which to arrest the progress of the infection. In respect of the use of drugs for this purpose there is only one substance, hexamine, of which trial has been made, and this, on the basis of some experiments of Flexner and Amoss. They found that on oral administration this substance can be detected in the cerebro-spinal fluid, and that the development of the experimentally produced disease in monkeys could be delayed, and in some instances prevented by keeping the animals under the influence of the drug both before and after inoculation. In the past, however, the use of hexamine in the customary dosage for infections of the nervous system has not given very promising results. Possibly the employment of massive doses with alkali, as has been suggested recently, might be more fruitful.

It has been found that the serum of convalescent or recent cases of poliomyelitis contains immune bodies, and the administration of such serum, both intrathecally, intravenously and subcutaneously, has been tried during recent epidemics. The method has given promising results in cases treated during the preparalytic stages in the form of a combined intrathecal and subcutaneous or intravenous administration. Since the serum of human convalescents is alone available for this purpose, it is obvious that, however encouraging we find these results, we have not yet available a method of serum treatment, either in itself reliable or equal to the demands which an epidemic of any severity would speedily make.

Whether or not lumbar puncture and thecal drainage during the meningeal stage has any therapeutic value is uncertain. It has been said that in patients with a brisk meningeal reaction the symptoms may be relieved by this means.

In respect of the infectivity of poliomyelitis, it is clear that the patient should be isolated and his secretions treated as infective since the nasopharynx is known to harbour the virus. Precautions to this end may in all probability, be safely given up three weeks after the temperature has fallen, as the presence of the virus after this period has not been recorded in the human subject.

Whether the routine use of antiseptic gargles has any other value than to impress upon the patient and his attendants the infective nature of his malady is problematical, but even this, though a modest, may be a useful function

The Postparalytic Stage.

The period of infectivity once passed, the treatment of the paralysed muscles alone remains It is not now possible to do more than formulate some general principles in respect of this During the remainder of the acute stage—that is, until the disappearance of pain and tenderness—no other therapeutic measures are permissible than rest and the prevention of deformities Local treatment, either as massage or electricity, are strongly contra-indicated, not merely as useless, but as calculated to aggravate the pain and to prolong its duration There is no need for me to stress the difficulties which this policy of apparent inactivity may present, in the face of the fantastic claims made for electrical procedures, and the faith which the public has in this and other mysterious forces Whatever we believe of the value of this form of treatment in the convalescent stage, it is most certainly unjustifiable during the acute stage Upon this point all experienced observers are now agreed

The prevention of deformities is achieved by placing the paralysed muscles as completely as possible in a position of physiological rest When, as so frequently happens, we are dealing with paralysis of adjacent and antagonistic groups of muscles this position must necessarily be one intermediate between full lengthening and shortening of the muscle, and as near the minimal length as possible

Various methods of *splinting* have been advocated to fix the limb in the desired attitude It is clear that the age and condition of the child and the degree of pain present will determine which method best suits the individual case We may, however, enter a warning against the total immobilisation of a limb for any length of time within a plaster splint, a method by which paralysed and intact muscles are alike completely fixed, to the great detriment of the latter

Re-education —With the arrival of the pain-free convalescent stage the maintenance of good posture, which remains essential, may be supplemented by more active procedures Placed in order of value, those adopted are active re-education exercises, massage, and electrical stimulation We may briefly dispose of the two last named There is an increasing consensus of opinion amongst experienced observers that at best electrical treatment in any form is of doubtful value and at worst is definitely harmful Harmful in that it is apt to replace valuable methods of treatment and to aggravate the imbalance between opposing muscles of variable degrees of weakness, and at best of doubtful value in that carefully observed cases which have been thoroughly dealt with by other means do as well without it as with it Lovett, of Boston, who carried out control observations on this point, failed to find evidence of benefit from electrical treatment

Massage undoubtedly has a most useful though restricted sphere of usefulness When carefully administered it maintains the inactive muscle in as good a condition as possible pending its renewed innervation It helps to preserve a useful effector organ for the restored neurone to innervate It has no other influence It is most valuable in the case of completely or profoundly paralysed muscles for which active exercise is out of the question

Unquestionably of primary importance, though far more difficult to obtain, is the re-education of the affected muscle by active exercise For every patient a scheme of such exercises must be drawn up according to the particular muscles concerned and corresponding to the degree of their weakness This must be revised from time to time as recovery proceeds Details of such exercises are to be found in Lovett's "Treatment of Infantile Paralysis" This active re-education involves the mobilising of the patient at the earliest possible moment Here we seem to run counter to a widely cited dictum that even momentary and slight stretching of a paralysed muscle permanently impairs its chances of recovery It seems to me that this sweeping statement is unsound on physiological grounds, and in practice condemns the patient to an indefinitely prolonged immobilisation which must react unfavourably upon the whole neuro-muscular system.

We now know from the researches of Sherrington and Liddell that stretching of the muscle-fibre is the normal physiological stimulus for the production and maintenance of muscle tone and other proprioceptive reflexes, and it seems incredible therefore that, within reasonable limits, a physiological stimulus can be essentially harmful.

INCIDENCE, SUSCEPTIBILITY, AND MODE OF SPREAD.

Like every other acute specific fever, poliomyelitis has its particular seasonal and age incidence, susceptibility factor, incubation period, and mode of spread

In its epidemic form it is a disease of late summer and autumn, August being usually the month of maximal case incidence But outbreaks occur at varying times from this into the winter It is characteristically a malady of early childhood, of the second to the fifth years of life After this period the case incidence falls rapidly, although it occurs throughout childhood and adolescence and, less commonly, in adult life The various estimates of the incubation period range from 2 to 12 days, from 3 to 4 days is probably the most common All available evidence indicates, to use the words of the Rockefeller monograph, that epidemic poliomyelitis is "a human-borne contagious affection, the portal of entry for the virus of which is the upper respiratory tract, in particular, the nasopharyngeal mucous membrane"

The infection is carried and spread by sufferers from the disease, both in its complete and its so-called "abortive forms," and also by healthy carriers In these the virus is present in the nasopharyngeal mucosa and in the secretion thereof It is probable that from this situation it gains access to the subarachnoid space through the perineural lymphatics of the olfactory nerve filaments, and having once gained such access may again pass out by the same channel into the nasopharynx.

In the case of the infected patient, the observations of Flexner and Amoss indicate that the virus generally disappears from the nasopharynx of convalescents within three weeks of the onset of the disease There is no evidence of the existence of chronic active carriers The longest known period of carriage by a healthy subject is that recorded by Amoss and Chesney, who detected the virus in the nasopharyngeal secretions of a healthy girl five days before she developed the disease Hence the presence of chronic carriers of either type is unproven The following case is of interest in relation to this question —

H J, a boy of 11, spent the month of August in Brittany, a known infected area He returned to his boarding-school in September and remained healthy until Nov 3rd, when with six other boys he went sick with sore-throat In all of them there was pyrexia of from 100° to 101° F and a typical condition of follicular tonsillitis On Nov 6th all the seven were released from the infirmary and went to morning chapel While dressing the boy in question noticed that his right leg was weak and ached somewhat On the way to chapel he was seen by the headmaster to fall down and to be unable to get up again That evening examination revealed definite weakness of moderate degree of several muscles in the right lower limb with loss of the knee-jerk The other six boys remained well

There are two possible interpretations of this episode That all seven boys suffered simultaneously from poliomyelitis, all but one proving abortive In this case no original source of infection is discoverable An alternative possibility is that H J alone suffered from poliomyelitis that he had been a healthy carrier since leaving Brittany, and that the faucial infection and resulting reaction allowed of active infection by a poliomyelitic virus already present On this view there is a known source of possible infection

The question of natural susceptibility and resistance is also of considerable practical importance, although, unfortunately, our knowledge of these factors is far from complete, in this as in other infective diseases Experience seems to indicate that there is a high resistance to infection by the poliomyelitic virus in the community at large Unlike measles, small-pox, and varicella, poliomyelitis will not vegetate on every soil Here, again, there are alternative speculations Conceivably, the great majority of infants suffer from an abortive form of the disease in early life and thus acquire that permanent immunity which known sufferers from the malady subsequently enjoy, and we know that when successive epidemics strike a community within a short period of years the victims tend to be those born since the previous epidemic On the other hand, those who fall victims to it may belong to a group of persons, of whose existence there is some evidence, in whom the healthy nasopharyngeal secretions lack the protective bodies which healthy individuals have been found to possess Interesting as such speculations may be, they do not provide any basis for practical action when the disease makes its appearance in a community in epidemic form

No account of the epidemiology of poliomyelitis can fail to take account of the recent investigations of W W C Topley and Major Greenwood on animal communities, and those of S F Dudley on certain semi-isolated human communities

Topley's observations indicate that within an isolated community of mice the spread of an infective disease can be limited by the segregation of the members into small groups, that it is increased by the addition to the herd of fresh susceptible individuals, and that even after the infection appears to have died down, the introduction of susceptibles will cause it to flare up anew

Dudley's observations have dealt with a series of infections, including sore-throat, influenza, mumps, German measles, scarlet fever, and diphtheria, maladies which are usually disseminated in droplets borne in the expired air of cases or carriers of disease Knowing that the virus of poliomyelitis inhabits the nasopharyngeal secretions and is spread by human contact, it is not unreasonable to consider it as a probable example of "droplet infection" Stated very incompletely and summarily, Dudley's observations indicate that dormitory infection is the principal mode of spread, which occurs in direct proportion to the proximity of the sleeping individuals In a mixed day- and boarding-school, diphtheria, contrary to what one might have expected, took its toll of the boarders and not of the day boys of that or of neighbouring schools Thus, Dudley says "In 1921 the morbidity for diphtheria at Greenwich Naval School was 1000 per 10,000, which is about 20 times greater than the estimate given above for London elementary school-children of the same age Most of the Greenwich boys are recruited from the Board Schools, and on entry showed about the same degree of herd immunity as is found in children of the same age at these schools Therefore, when the best specimens of County Council school-boys were transferred to another type of environment they suffered from a morbidity more than fourfold that which fell on similar boys who remained in the original environment" He adds that the figures for scarlet fever are almost identical with those for diphtheria The factor responsible for this increase seems clearly to be bed-to-bed infection in dormitories, and not class-room and play-ground infection There are many other aspects of Commander Dudley's investigations which make them of the greatest value, but these points will suffice for my present purpose

Outbreaks in Boarding-schools

Certain recent outbreaks of poliomyelitis in boarding-schools have brought home to us the necessity for practical measures based upon the available relevant facts of observation in respect of infective diseases The character of the desirable measures has given rise to considerable controversy, in which authoritative opinion has been found in support of each of two rival policies The matter is of sufficient importance to warrant some reflections

It seems to have been assumed by both parties to the controversy that one alone of the alternative policies advocated could be right the other being wholly and always unsound, that boarding-schools in which poliomyelitis appears must either of necessity be enclosed and quarantined, or, alternatively, must be broken up and the pupils dispersed Surely, to take this view in the present very incomplete state of knowledge is to place a very complex situation upon the procrustean bed of an unjustified generalisation There are obvious objections to either policy and it may be doubted whether either has a universal validity

In the first place it seems to me that the situation is dominated by the fact that the head of a school owes his first responsibility to the parents who have confided their children to his care. For him the safety of his little community takes precedence of that of the community at large This may be regrettable, but, unless and until the State intervenes with a contrary policy, is inevitable and must be faced

Starting from this assumption, is isolation of the school and quarantine or dispersal the sounder policy in the light of present knowledge? Surely, the answer to this question depends entirely upon local conditions

From what has been said, the minimal requirements of a safe isolation of the school community are the segregation of its members into small groups, each isolated from other groups, the sleeping of the individuals under such conditions that "droplet infection" cannot occur, and the strict exclusion of fresh susceptible members for a long period after the dying out of the infection

If these measures are not practicable, then the enclosure of the school community cannot be justified on its merits. In commentary we may say that in most boarding-schools they must prove wholly impracticable Further, we must bear in mind that poliomyelitis may lead to permanent and severe crippling in those who survive the infection, and that with the appearance of each fresh case the period of isolation and the chances of contact infection increase Finally, it may be asked, is it reasonable to expect a parent to allow his child to be shut up in the focus of infection of such a disease, as we know poliomyelitis to be, for an indefinite period? Each one may answer this question for himself

Against the policy of dispersal, on the other hand, there are also grave objections The dispersed individuals may be carriers and may spread the infection within the community at large Such is its usual mode of spread In assessing these dangers, as far as we can, we know that the disease is not highly infective, and that in its home the child can be so segregated on the lines indicated above as to reduce considerably the chances of spread Finally, as we have seen, the policy of dispersal may be unavoidable when safe enclosure is impracticable, or when irrespective of this, the parent decides the matter

It seems that the closest approach to a decision we can make is to say that under ideal conditions—and only under such conditions—enclosure of the infected school community is probably the method of choice In all other circumstances, dispersal may have to be resorted to In short, local conditions should decide the policy finally adopted in any given instance

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PLYMOUTH HOSPITALS —Thanks to the penny-in-the-pound scheme, the income of the Plymouth Voluntary Hospitals Committee has much more than doubled during the last three years In 1926 the scheme produced £15,000 as against £6000 in 1924

PHYSIQUE OF POLICEMEN —The chief police surgeon for Bradford, Dr William Wrangham, and seven medical assistants have presented a report on policemen's physique to the City Watch Committee They state that the Bradford policeman "does not possess the stamina of the pre-war man, in other words, there has been a decline in the physical and psychic standards" Suggested steps for improvements are Sleeping with bedroom windows open, daily physical exercise, special care of the teeth, cold baths or a sponge-down on the advice of the police surgeon, inoculation of men susceptible to cold on the recommendation of the police surgeon, and two periods of duty of four hours each separated by four hours' rest, instead of eight hours' continuous duty The report was considered on Jan 28th by the Organisation Subcommittee of the Bradford Watch Committee, and it was decided to seek further information as to the reason for the alleged decline Statistics show that in Bradford there is a higher percentage of days lost through sickness than in any other town in the country except one The figures for 1925 are said to be Birmingham, 6, Manchester, Hull, and Cardiff, 7, Bristol, Liverpool, and Newcastle, 8 Salford, 9, Nottingham, 10; Bradford, 17, and Leeds, 19

SPA DOCTORS AND THE IMPROVEMENT OF NATIONAL HEALTH *

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I propose to start by giving two texts The first is taken from the preface to a translation of one of Dr Carl v Noorden's works by Dr A. C Croftan, of Chicago —

> " In sanatoria and in watering places too much attention is generally bestowed upon the immediate result, too little upon the ultimate effect, the most important element of the treatment being always the education of the patient not for a few weeks but for the rest of his life "

The second text is the refrain of Rudyard Kipling's verses entitled " The Heathen," " All along o' dirtiness, All along o' mess, All along o' doin' things, Rather more or less "

Whatever his previous experience may have been, the purely spa physician has to do mainly with the chronic conditions of ill-health The duration of the actual symptoms of which the patient complains may vary from a few weeks to many years and may have been continuous or recurrent, but in any case they are rarely if ever seen at the spa in their early stages Too often the early symptoms have been treated too lightly, and this may be quite as much the fault of the patient as of the doctor.

Early symptoms are often slight and by both doctor and patient are treated with more or less indifference Symptoms are relieved without a proper investigation into their cause, but surely that is the time when it would be easier to effect a complete cure If a slight fire occurs in one's house, one does one's best to put in out as quickly and as effectually as possible In the body the *slightness* of a morbid condition and not the morbid condition itself seems to be dwelt upon, and vigorous and, if necessary, sustained methods are not made to eradicate it entirely For this, as I have said, the doctor is not wholly to blame Too often if he tries to press upon the patient the importance of getting at the cause of some slight affection, he is thought to be making a fuss, but the fact remains, if a patient has a pain he asks only, as a rule, the relief of the pain and not of the factors that have caused it and so on

Factors of Disease

As regards the factors of disease, with the exception of trauma and acute infections and some of the diseases which arise from occupation and environment, I think it will be generally agreed that chronic sepsis, especially sepsis of the upper part of the digestive and respiratory tracts, and faulty habits, are the causes of most of the morbid conditions of middle and advanced age In a sense one would say they are due entirely to faulty daily habits If this suggestion is correct that chronic sepsis and faulty habits are responsible for most of the morbid conditions which we are called upon to treat, it is necessary that the spa physician should make a careful study of daily habits—all habits, but especially of food habits—though clothing, exercise, ventilation, and so on are also most important He should be familiar with the régime of the nursery, as in the nursery habits are acquired that persist through life This is one reason why it is desirable that the spa doctor should not specialise until he has had some years of general practice As food and raiment are important, he should know more about them than he can have learnt at any medical school He must become acquainted with all the factors that can cause chronic disease—that is, if his aim at the spa is not merely to treat symptoms and get a temporary improvement but to secure as far as he can permanent cures It is the whole condition of the patient and not his symptoms that requires treatment A man is not suffering from high blood pressure or from fibrositis, but from the general deterioration of the body, the result of factors which have usually been in operation for a considerable time and which are most often still in operation I often say, when I hear that so-and-so has died from pneumonia, that he did not die from pneumonia but from the condition he was in when he got pneumonia It is not the last straw which breaks the camel's back, though we sometimes talk and act as though we believed in that misleading proverb.

Then again, in the disease which occupies so much space in the public view—cancer—the idea that is held by some surgeons that cancer can occur in the perfectly healthy body is, in my experience, absurd. Because a man has not complained of symptoms, it does not show he is healthy I have seen a large number of cases of malignant disease in general practice, and since I have been in spa practice have often been the first to discover it But never yet have I seen it except in a body in which there is already a more or less general fibrosis, and I think it is possible that we at the spas, better than any others, may be able to throw light on the precancerous condition

Chronic Sepsis

Now I will come to the gist of my address If we are agreed that the illnesses of middle life and old age are due to chronic sepsis and the gradual accumulation of toxins and waste matters in the body, with the gradual deterioration that comes from faulty habits, is it not of vital importance to us that we should be agreed as to the prevention and treatment of sepsis, and as to what should be the daily habits of the civilised man ?

I want to suggest that it may be a useful work in this section to arrive at agreement as to what we should teach, so that the layman should not be able to say, as he glibly does say, " But you doctors do not agree amongst yourselves and you tell us to do things, but do not practise them yourselves " These reproaches are too often merited Why cannot we do our best to wipe them out ?

Taking the two things that I have suggested as the main factors of middle-age disease—chronic sepsis and faulty daily habits—in order, the commonest form is dental sepsis, which is more or less generally recognised But the factors that caused it began in the nursery Dental sepsis itself in the form of marginal gingivitis is very common in children in early life and it is not adequately treated Over and over again when there has been a general septic condition affecting all the teeth I have known three or four of the worst teeth to have been removed and a vaccine, absolutely useless in my experience, to be made and injected, but the other septic teeth are permitted to remain In cases of sepsis it is surely not a question whether the sepsis is advanced or not, it is its presence This habit of half removing sources of dental sepsis is as foolish as it would be, if one's house were on fire in several rooms, to put the fire out in three rooms and leave it burning in two others where it was not burning so fiercely, and had not done so much damage

Another point about dental sepsis it is the fashion now, even when septic conditions are obvious to the eye, to have the teeth radiographed and, if there is not much obvious destruction of bone or apex of tooth, not to regard the condition seriously But septic conditions round teeth can exist for years before any change is shown in bone or teeth As in the case of a fire it is not the damage already done that is most important, but the damage that must result if the fire is not completely extinguished

It has been alleged that the treatment of dental sepsis has often resulted in *no* improvement to the patient I attribute the failure in many cases to the fact that the treatment has not been radical Some years ago Mr. St John Steadman read a paper at the Odontological Section of this Society on a case of rheumatoid arthritis twice cured by dental treatment My comment was that the teeth he took out on a second occasion were septic when he made his first extraction, hence the recurrence of the symptoms Secondly, it is, of course absurd to suppose that the extraction of teeth in itself is anything but harmful We have all come across cases when even the extraction of three or four teeth—the extraction of many teeth at a time should always be avoided—has caused an exacerbation of symptoms Further, a complete eradication of dental sepsis, though it provides for future safety, cannot possibly do anything to undo the damage already done

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* Being the presidential address delivered to the Section of Balneology and Climatology of the Royal Society of Medicine

May I venture to quote two extracts from the Transactions of the Royal Society of Medicine[1] —

> "Another point to be remembered is that the longer the source of sepsis is permitted to remain the greater the damage to the tissues In young adults most marked and rapid improvement in a general condition will often follow dental treatment, while in those of advanced years the improvement is often slow and not so complete This difference is naturally to be explained by the fact that in the young the tissues have not been damaged beyond recovery, whereas in those of more advanced years the tissues are damaged beyond repair This, to my mind is a most important point and with increasing knowledge of these cases I think the tendency will be to insist more and more on the early removal of teeth in cases of dental sepsis, and so place the patient, so far as the mouth is concerned, in a safe position."

Again in the discussion on a paper by Dr (now Sir) Thomas Horder[2]—

> "Dr Ackerley expressed his general agreement with Dr Horder that oral sepsis, especially when chronic, had most serious results on general health, and was, he believed, a large factor in many of the diseases of middle life and old age, especially those in which fibrotic changes were a marked feature How far it was a factor could be known only to those who insisted not on its partial but on its entire removal He could not quite understand the attitude of those who allowed a septic condition to remain in the mouth because they doubted whether the results were as serious as had been suggested He thought their duty to their patients was to give them the benefit of the doubt and to remove a potential source even if they doubted its being the actual source of disease No one would suggest that a septic mouth was conducive of health"

Cannot we at some time, come to an agreement as to what our duties ought to be with regard to dental sepsis It will certainly be necessary if the spas take up the treatment of insured persons, to provide for the treatment of dental and other sepsis To me this presents considerable difficulty, as over and over again I have been assured by patients that their dentists have pronounced their mouths free of disease when sepsis has been neither slight nor obscure

FAULTY DAILY HABITS

I now come to the question of daily habits The first thing that occurs to one is, what should be our teaching as to habits of eating and drinking? It used to be a habit, and still may be a habit at some spas for doctors to have lists of all sorts of likely and unlikely foods provided, underlining various articles as desirable, others as permissible, and others as forbidden I have seen many of these lists and have often failed to understand on what process the selections were made In my own practice I find it is rarely necessary to prohibit any natural foods if plainly cooked Sugar and condiments &c I cannot regard as foods But I often find myself saying ' It is far less important what you eat than how you eat it " Food habits are important It would be a great boon to ourselves and to our patients if we could be agreed on our teaching regarding them Are the usual four or more meals a day good for the child and the apparently healthy? Or is the very frequency of meals for years, one of the causes of the dyspepsia of middle life, for in middle life the eupeptic individual is hard to find There may be no complaint of indigestion if one asks a patient, but there is constipation and flatulence, all serious signs of faulty digestion, in almost every patient one sees and examines carefully Is the usual afternoon tea with its cakes and sweets the harmful thing that our friend Dr. Leonard Williams suggests? I may say I am in full agreement with him Is the habit of eating and drinking together a habit common to civilised human beings, but I am told practically unknown among wild animals, right or wrong? Not only does the wild animal not eat and drink together, but if a man had a valuable horse likely to be a Derby winner, he would not allow it to be fed and watered at the same time, and if the mastication and insalivation of food are essential to digestion I venture to repeat a remark I made at the discussion on Alimentary Toxæmia, "that perfect insalivation does not occur when food and drink are taken together." I think the researches of Pavlov will confirm this Then, too can we not be agreed about some important articles of food? Is it of vital importance that a whole meal bread and not the emasculated substance usually called bread should be eaten by young and old? To help to prevent goitre, should children have iodised salt or have the iodine contained in the outer part of the grain of wheat? Is sugar—I mean refined sugar, not of course the natural sugar that is in fruits or honey—good or harmful? Is it harmful only when the middle-aged man or woman is ill, or is it harmful before he becomes ill and was it one of the factors causing his ill-health? Are beef and veal harmful to the Englishman and innocuous abroad? And is mutton so much more wholesome than beef? Hutchison suggests not But he does not point out that the Englishman eats mustard or horse-radish with his beef—nasty pungent substances which irritate the palate and stomach May I be permitted to interpolate here an observation that is not strictly à propos on the question of butcher's meat Fourteen years ago when I was in Egypt I began to notice the fat of meats There were there two sorts of beef, one local the meat of a small animal not overfed with very little fat and cold-storage meat laden with fat, the source of which was, I believe mostly Austrian I cannot vouch for this but whatever its source it was especially provided for the English consumer. As regards the flavour of the fat of the two kinds of meats the fat of the Egyptian animal was far more tender and far more palatable When I returned to England I began to notice the fat of English beef and mutton and found similar differences The fat of the Welsh sheep picking up its food naturally on the hills and not penned nor artificially fattened is lighter in colour and far less fibrous than the fat of mutton I see in London. The same applies to the difference between naturally fed and artificially fed beef. The most disgusting fat I ever saw or tasted was from a prize beast fattened for the Christmas show. I venture to suggest that the fat of artificially fattened animals and birds is like the fat of obese fibrotic men or women, and that it contains toxins that must be harmful if ingested.

Is milk a proper food for the child and the adult? How curious it is that except for man and the few animals to whom he gives it, no animal gets milk except at the suckling stage and only gets it then in such a way that it must be mixed intimately with saliva provided by mother nature so abundantly in the young that young animals have slobbery mouths Are the usual condiments so often forbidden when dyspeptic conditions are established or the kidneys affected only harmful then or were they factors in causing the dyspepsia, &c? Again, is the addition to almost all our food of one particular crystalline mineral salt sodium chloride, a substance the body hates and detests so greatly that it tries to eliminate it as rapidly as possible, essential or useful—or is it, as an increasing number of us believe a substance that from its insistence on being eliminated, interferes with the elimination of other waste matters from the tissues?

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[1] Colver Discussion on Alimentary Toxæmia Proc Roy Soc Med March 1913

[2] Dental Sepsis from the Point of View of the Physician, Odontological Section Trans Roy Soc Med 1913-14

I do not wish to labour the question of habits but one or two others are of paramount importance.

Defective Oxygenation

It is more or less being recognised that in middle life and old age defective oxygenation is a large and important factor. It has occurred to me from clinical observation that toxins, of which we know so little, are like diamonds, very difficult to burn up. The toxin-filled body needs far more oxygenation than it gets or can get. It cannot get it first because from the fact that nearly all the activities of the upper part of the body are in the front of the body, and from defective daily exercises, the expansion of the chest diminishes as years increase, and secondly, ill-ventilated rooms with their moist stagnated air are a further bar to oxygenation.

Can we not be agreed and earnest in our teaching to secure full oxygenation of the body? We shall not do this as long as we shut our own windows and while professing to like fresh air, have a dislike to moving air and call it a draught. As Luciani, the Italian physiologist says, "It is an undeniable fact that the oxydising process is the most important in the animal body."

Water

Before I pass entirely from food, may I mention the question of water? I have suggested elsewhere that the ingestion of hot water and hot sloppy drinks are entirely harmful and shortly after I wrote my paper on that subject I found that the brothers Mayo in papers they wrote in 1915 and 1918 attributed the increase in cancer of the stomach largely to the ingestion of hot drinks; and also Mr Stuart Low has regarded cancer of the gullet as probably partly due to hot food. Yet I constantly find that doctors, including, I think, some here present advise the taking of hot water the first thing in the morning and at other times. No animal in creation except man ever swallows anything hotter than its body, and even the domestic dog has a dread of hot food. What is the right procedure? If hot drinks are wrong, think of the millions of wrongdoers in this country of ours! The fact that one million or one hundred millions of people do a foolish thing does not make it wise or good.

I mention these things—there are plenty of other things one could speak of if there were time—simply as part of my plea, that we should be agreed as to our teaching and not differ on matters of real importance. When in a paper I read in this Section on Fibrositis I endeavoured to show how gradually the body of a young child described by Dr Leonard Hill as "a glorious and perfect machine the heritage of millions of years of evolution," became a dirty body full of toxins and waste products with tissues hardened by the retention of those toxins, I was twitted by Dr Leonard Williams with having given a lecture on the laws of health. But it is precisely because spa doctors see more than anyone else the results of the violation of these laws that they should become more than others teachers and upholders of laws. *Gutta cavat lapidem non vi sed sæpe cadendo.* Why should one run, say, a valuable motor-car with every attention to detail and be careless how one runs a much more complicated and valuable machine, the human body?

As all present know there is a suggestion that the industrial classes should be treated at the spas. Is the treatment to be palliative or is it to be radical? If only palliative, if only the actual temporary disablement is to be attended to and no proper attempt is made to get at the factors that cause disablement, after a few years I feel sure, to put it in a modern phrase, the insurance societies will not find it a paying proposition. But if we take the line I suggested some years ago with reference to fibrositis for "complete cure and not for mere temporary relief, we must attend to all and not to one or two causal factors. It is the underlying condition and not some of its results that requires radical treatment," and acting on that we teach our patients not for a few months but for the rest of their lives. I think, that more and more the desirability of spa treatment for rich and poor would be recognised and we should have done not a little to improve national health. Of course the moment we begin to try to alter people's habits we shall begin to have trouble. May I tell you a little story? Many years ago a man about 55 went down to Llandrindod and met in the smoking-room of a hotel a friend of mine. He said he had come down to get treatment for gout and asked my friend if he knew any doctor he could recommend. He suggested myself. The patient, corpulent, plethoric, dyspeptic, prematurely old and very sorry for himself, came to see me. A day or two afterwards my friend met him again and learned he had been to see me. "And how did you like Ackerley"? "Not at all" was the reply. "He is the most impudent fellow I ever met. I came down here for baths and the waters for my gout and that fellow wanted to interfere with my habits." The story suggests the dangers we run if we try to alter habits, but surely the business of our profession should not be to get people out of ditches into which they have fallen but to prevent them falling into ditches? As we have to earn our living from our work an old rhyme occurs to me—

> Tickle the Public and make them grin,
> The more you tickle, the more you'll win
> Teach the Public, you'll never grow rich
> You'll live like a beggar and die in a ditch

But my own feeling is that when the public realise more and more the anxiety of a doctor to keep them in health the more they will consult him and the more they will trust him. Of course foolish people and those of our own profession who have acquired the habit of doing and advising "rather more or less" will call us faddists, but we need not be troubled by that. Semmelweiss and Lister in our own profession were denounced as faddists. It is true that the one was martyred—but the other was canonised. So Lord Wolseley was denounced as a faddist, but the people who denounced him would have produced an army in 1914 little better equipped and accoutred than Wellington's army in the Peninsula. To those who say they cannot be bothered about rules of living, they do not want to think about their bodies my reply is that if they do not think of the body the body will sooner or later make them think about it. It is a fact when habits are acquired we do not think of them, we perform them unconsciously.

In conclusion may I say, that our teaching must be with conviction, that is one of the main reasons why I plead for agreement between ourselves, what we shall preach and what we shall practise, and as in the physical body and in the body politic much harm ultimately results from half doing things and allowing the little evil to remain until it has become a great evil. Let us as Kipling says, "Keep away from dirtiness, keep away from mess, Don't get into doin' things rather more or less."

French Honour for Dublin Surgeon.—The Government of the French Republic has conferred the decoration of Officier de l'Instruction Publique on Mr William Doolin, F.R.C.S.I., in recognition of his services to French medical science and the development of fruitful relations between the Irish and French medical circles. Mr Doolin is editor of the *Irish Journal of Medical Science*, and recently represented the Royal Academy of Medicine in Ireland at the Laennec Centenary Celebrations in Paris.

PULSATION IN THE SUPERFICIAL VEINS OF THE EXTREMITIES

WITH DESCRIPTION OF A CASE

BY DAVID KRESTIN M D, M R C P LOND.
MEDICAL FIRST ASSISTANT, LONDON HOSPITAL

PULSATION in the superficial veins has always interested both clinician and physiologist, doubtless because it is easily observed. Such pulsation is not commonly seen in the veins of the extremities, and the following case is recorded both for its comparative rarity and the unusual features presented. No useful purpose would be served by attempting a complete review of the literature as full accounts have been given by Mackenzie[16] in 1894, in his exhaustive paper the Venous and Liver Pulses and Arrhythmic Contractions of the Cardiac Cavities; and more recently by Kerr and Warren.[14]

The earliest record of peripheral venous pulsation I have been able to find is that of Hombert,[12] cited from Friedreich[5] who in 1704, described pulsation in the veins of the neck and arms of a patient during periodic asthmatic attacks. In 1757 Albert Haller[10] referred to a patient who presented pulsation in all the superficial veins of both upper and lower limbs, the condition we are told, being found on post-mortem examination to be due to the presence of "polypi" within the beginning of the pulmonary artery obstructing the outflow of blood from the right ventricle. Isolated cases were described in the early part of the nineteenth century the earliest by Zulian[23] in 1805. Friedreich[6] in 1867, quotes Mayer who with Goubler and Verneuil noted pulsation limited to the varicose veins in one leg an observation presenting at least one feature in common with the following case:—

A Case of Peripheral Venous Pulsation

A married Jewess, aged 52, first came under the care of Dr Lewis Smith at the London Hospital in July 1919, when she was admitted for cardiac failure. She had been quite well until two years before when she began to complain of a cough and shortness of breath on exertion. Two weeks before admission her symptoms became much worse. Swelling of the feet, epigastric discomfort and palpitation kept her awake at night. She had no history of rheumatism, chorea or other illness. Of seven children all were alive and well, and she had had three miscarriages.

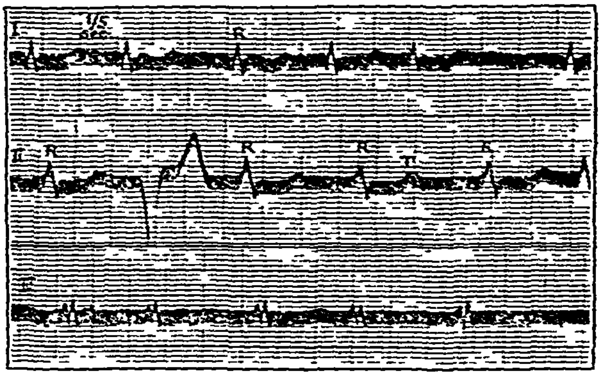
At this time the patient was a thin, tired-looking woman in obvious respiratory distress. She was slightly cyanosed and her feet were moderately œdematous. The pulse was small and completely irregular both in rhythm and force, the rate at the wrist was about 78 per minute. The apex-beat was in the seventh space, four and a half inches to the left of the mid-sternal line. Both cardiac sounds, completely irregular were audible in all areas. A presystolic murmur at the mitral area was described in the notes. The lungs were clear, except for a few inspiratory bubbling crepitations heard at the left base. The lower edge of the liver was felt one inch below the costal margin in the right mid-clavicular line, and there was slight tenderness on deep pressure over it. Hepatic pulsation was not recorded, nor was reference made to pulsation in any superficial veins. There were varicose veins on both legs. A diagnosis of mitral stenosis and auricular fibrillation was made, and after three weeks in bed on digitalis the patient was discharged much improved. She remained under observation as an out-patient, and except for occasional attacks of breathlessness, which were readily improved by digitalis, was able to carry on with her housework and the nursing of an invalid husband.

In August, 1924, on rising from bed, she found that her mouth was drawn to the right side, and her left arm and leg were paralysed. Consciousness was not lost, and after some hours she regained the use of her limbs. Two similar but slighter attacks followed within the next three months from which she made a complete recovery.

In June, 1925, one of the veins over her left tibia ruptured and she was readmitted to hospital. Her breathing was laboured and she was cyanosed, the ankles and shins were slightly œdematous. The apex-beat was diffuse heaving and disorderly, in the seventh space in the mid-axillary line. At the mitral area the first sound was followed by a long blowing systolic murmur conducted out to the left axilla and the second sound by a long diastolic murmur. These murmurs were less distinct in other præcordial areas. The lungs except for a few crepitations heard over the bases were clear. The superficial veins of both legs were exceedingly varicose tortuous, and prominent, the larger of these in the left leg measured fully half an inch across. It was then noticed that they were visibly pulsating and more careful examination of other superficial veins—viz., of the temples, neck, arms, dorsum of hands, chest, thighs, and feet—showed similar but less marked pulsation. The liver edge was now four inches below the costal margin in the right mid-clavicular line and there was distinct pulsation on palpation. The urine was free from albumin and sugar. The patient rapidly improved with rest, and was discharged after ten days.

From that time she has been able to carry out her usual household duties although with any attempt to exert herself beyond the ordinary, dyspnœa and palpitation caused enough distress to necessitate resting in bed for several days. Under such circumstances the patient was readmitted to hospital on three subsequent occasions. The predominating features always remained the same, and the venous pulsation was constantly noticed.

FIG 1.



Electrocardiogram showing auricular fibrillation, small amplitude of ventricular complexes (R) and an ectopic ventricular beat

She was last readmitted on July 23rd, 1926, in a condition much the same as before. There was a little orthopnœa, slight cyanosis of the lips, the respiratory rate being 20 per minute. The lungs were clear and have remained so throughout. The pulse was completely irregular in rhythm and in force: the rate on admission was about 60 per minute—she had been taking digitalis at home—and in hospital it remained about 70. The arteries were thickened and the blood pressure (brachial) was approximately 140 mm Hg systolic and 80 diastolic. There was extensive and heaving pulsation of the whole precordia, the apex-beat was in the seventh space in left mid-axillary line and the pulsation in its neighbourhood had a wavy appearance. The fifth to the eighth intercostal spaces inclusive in the left axilla showed well-marked retraction with each cardiac systole. The area of cardiac dullness reached upwards to the level of the upper border of the third costal cartilage, on the left to the apex-beat and on the right to half an inch external to the right border of the sternum. A long diastolic thrill was palpable over the apex. At the mitral area no first sound was heard but there was a long systolic murmur conducted outwards; the second sound was accentuated and followed by a long diastolic murmur. At the aortic area both sounds were present and distinct. The electrocardiogram (Fig 1) shows auricular fibrillation, small amplitude of the Q R S complexes, and ectopic ventricular beats.

A radiogram (Fig 2) was made by Dr M H Jupe, to whom I am indebted for the following report:—

"The film shows an enormous heart whose border extends fully to the left wall of the chest. The size is due to an enlargement of all chambers particularly of the left ventricle. There is no evidence of dilatation of the superior vena cava. The appearance is such that would be expected to result from extensive pericardial thickening and adhesions to surrounding structures. The very gross pulsation of the whole chest with each cardiac impulse, with the great size of the heart together made it unusually difficult to obtain a good film."

The superficial veins of the limbs showed pulsation as noticeable as on former examinations. In the left leg this could be distinctly seen at a distance of five feet from the hates and detests so greatly that it tries to eliminate it as rapidly as possible, essential or useful—or is it, as an increasing number of us believe, a substance that from its insistence on being eliminated, interferes with the elimination of other waste matters from the tissues ?

I do not wish to labour the question of habits but one or two others are of paramount importance

DEFECTIVE OXYGENATION

It is more or less being recognised that in middle life and old age defective oxygenation is a large and important factor It has occurred to me from clinical observation that toxins, of which we know so little, are like diamonds, very difficult to burn up The toxin-filled body needs far more oxygenation than it gets or can get It cannot get it first because from the fact that nearly all the activities of the upper part of the body are in the front of the body, and from defective daily exercises, the expansion of the chest diminishes as years increase, and secondly, ill-ventilated rooms with their moist stagnated air are a further bar to oxygenation

Can we not be agreed and earnest in our teaching to secure full oxygenation of the body ? We shall not do this as long as we shut our own windows and while professing to like fresh air, have a dislike to moving air and call it a draught As Luciani, the Italian physiologist says, "It is an undeniable fact that the oxydising process is the most important in the animal body"

WATER

Before I pass entirely from food, may I mention the question of water ? I have suggested elsewhere that the ingestion of hot water and hot sloppy drinks are entirely harmful, and shortly after I wrote my paper on that subject I found that the brothers Mayo in papers they wrote in 1915 and 1918 attributed the increase in cancer of the stomach largely to the ingestion of hot drinks, and also Mr Stuart Low has regarded cancer of the gullet as probably partly due to hot food Yet I constantly find that doctors, including, I think, some here present, advise the taking of hot water the first thing in the morning and at other times No animal in creation except man ever swallows anything hotter than its body, and even the domestic dog has a dread of hot food What is the right procedure ? If hot drinks are wrong, think of the millions of wrongdoers in this country of ours ! The fact that one million or one hundred millions of people do a foolish thing does not make it wise or good

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FRENCH HONOUR FOR DUBLIN SURGEON—The Government of the French Republic has conferred the decoration of Officier de l'Instruction Publique on Mr William Doolin, F R C S I, in recognition of his services to French medical science and the development of fruitful relations between the Irish and French medical circles Mr Doolin is editor of the *Irish Journal of Medical Science* and recently represented the Royal Academy of Medicine in Ireland at the Laennec Centenary Celebrations in Paris return, and Claud Bernard[1] obtained pulsation in the veins of the submaxillary salivary gland as the result of dilatation of the arterioles following stimulation of the chorda tympani nerve

Centrifugal Pulse—This is the form occurring in the case above reported For the most part it has been ascribed to tricuspid regurgitation—the immediate retrograde propulsion of blood from the right ventricle to the right auricle and thence to the great veins—and no doubt this is the simplest mechanical explanation. It is now well recognised, however, that such pulsation may occur quite independently of any tricuspid lesion Vaquez[26] emphatically declares that the examination of the venous pulse gives no indication whatever of the condition of the tricuspid valve Graves,[7] cited by Mackenzie,[16] attributes this form of pulsation to the independent contractility of the walls of the veins themselves The ability of the great veins to contract was first described by Haller[8] in 1757 Brunton and Fayrer[3] demonstrated such contractions in the pulmonary veins of a cat, and McWilliam[18] described a rhythmic contractile state of the ostia of the great veins in fish

Two Varieties of Centrifugal Venous Pulse

Analysis by means of polygraphic tracings has resulted in the recognition of two forms of centrifugal venous pulse

1 *Negative or Auricular Form*—The part played by the right auricle in the production of venous pulsation has long been known Haller[8] and other physiologists asserted in the middle of the eighteenth century that the auricles could discharge blood backwards into the veins, and Morgagni[20] recognised clinically a venous pulse resulting from this Indeed, Potain[22] described such a pulse in the neck veins of normal individuals, which from inspection alone he recognised as being presystolic in time Further, Eichorst[4] noted a similar pulse in the veins of the forearm of a patient who had heart failure but no clinical evidence of tricuspid incompetence The jugular tracings in cases with a negative venous pulse show an "a" wave which may or may not be exaggerated

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Mackenzie[17] describes three conditions in which the ventricular or positive venous pulse may occur the onset of auricular fibrillation (by far the most common), great distension of the right auricle, and certain forms of regular tachycardia where the contractions originate at some abnormal site in the genetic system Whatever the condition, the one constant factor is engorgement of the right auricle with stasis of the blood stream passing through it In certain forms of tachycardia and occasionally in heart-block, the simultaneous 'contraction of the auricle and ventricle results in an overlapping of the 'a' and "v" waves, so producing one large wave in the phlebogram This as has been shown by Hewlett Mackenzie, and others, may produce abnormal visible pulsation in the neck veins But with a dilated and engorged right auricle a similar pulsation may occur apart from such a mechanism As Mackenzie[16] first pointed out, the "v" wave in normal jugular tracings is due to the overfilling of the right auricle from the veins at the end of ventricular systole Where the auricle is in a constant state of engorgement and stasis, this wave will be more prominent and occur earlier in the cardiac cycle But I do not think that this in itself would be enough to account for any well-marked pulsation, and a more important factor must be considered In normal circumstances the auricles are more or less empty at the beginning of ventricular systole, but in conditions where the auricle is constantly distended it will act like an inflated balloon, and readily transmit to veins communicating with it any impulses received from adjacent structures Thus the explanation offered by Vaquez[26] seems both simple and probable According to him, this form of venous pulse is produced by the retrograde shock received by the dilated right auricle from the contracting right ventricle, this shock being transmitted through the auriculo-ventricular wall, and may thus occur in the absence of any tricuspid lesion

Friedreich's Sign—One other cause of pulsation remains to be considered In the forms already mentioned the pulsation was due to a distension of the walls of the vein during cardiac systole Friedreich[6] described, in patients having pericardial adhesions, a pulsation in the neck due to an emptying of the veins during diastole with consequent collapse of their walls This has been confirmed by later observers Such a diastolic collapse would, by increasing the difference in venous pressures during systole and diastole, exaggerate any existing tendency to pulsation from causes already mentioned The explanation of this phenomenon first offered by Friedreich seems most probable Owing to adhesions of the pericardium to the anterior chest wall, the latter is forcibly drawn inwards with each cardiac systole At the moment this ends, the elasticity of the chest wall causes it to recoil briskly, resulting in a lowering and flattening of the dome of the diaphragm This pulls the heart down and increases the negative pressure within the thorax so determining a collapse of the veins during diastole The effect of this mechanism would be further supplemented by adhesions of the walls of the right auricle to surrounding structures tending to keep this chamber dilated

Mechanism of Pulsation in the Case Described

We may now consider to what factors may be attributed the striking pulsation described in our patient Its wide distribution and the fact that it is best seen over the anterior surface of the tibia excludes the possibility of transmission by contact with the large arteries Contraction of the veins themselves does not, so far as is known, produce venous pulsation in man As previously pointed out, the pulsation in our patient is centrifugal, and the polygram shows it to be of the "positive" or "ventricular" form Although manifestations of a gross tricuspid incompetence are absent, we have just those conditions which would favour stasis and great distension of the right auricle—namely, old-standing mitral stenosis with auricular fibrillation and resulting venous stasis The presence of adhesions anchoring the external walls of the auricle to surrounding structures must also be considered as a likely factor in maintaining dilatation of this chamber Although the venous pressure was not measured accurately, the height above the chest wall at which the veins of the forearm are seen to collapse, is always a useful indication of the degree of stasis in the right auricle The normal level, though somewhat variable, is generally about 5 or 6 inches As already pointed out, this height in our case was 12½ inches It is just under such conditions that the retrograde shock from the contracting right ventricle would bed The venous pulse was approximately synchronous with the arterial pulse On raising either arm or leg to a height of 12½ inches above the chest wall, with the patient in the recumbent position, the veins became empty and pulsation disappeared, maximal pulsation was observed at a height of 11 inches above the level of the chest wall After a segment of vein had been emptied by stroking with one finger it rapidly filled from the distal end, when filling from the proximal or cardiac end was prevented by digital pressure Pulsation, however, did not return until the proximal obstruction was removed, thus showing that the pulsation was centrifugal—i e, propagated from the heart to the periphery A systolic shock could be heard over the larger veins on auscultation with the stethoscope Fig 3 shows a tracing from one of the tributaries of the left internal saphenous vein The venous wave is seen to occur slightly later than the radial pulse Examination of the fundus oculi at no time revealed pulsation in the retinal veins The liver was enlarged as before and pulsated synchronously with the apex-beat Bimanual examination showed the pulsation to be expansile, and on one occasion examination in the "knee-elbow" position did not alter its degree There was no œdema of the extremities The amount of urine averaged 40 ounces in the 24 hours and contained no albumin. The Wassermann reaction was negative

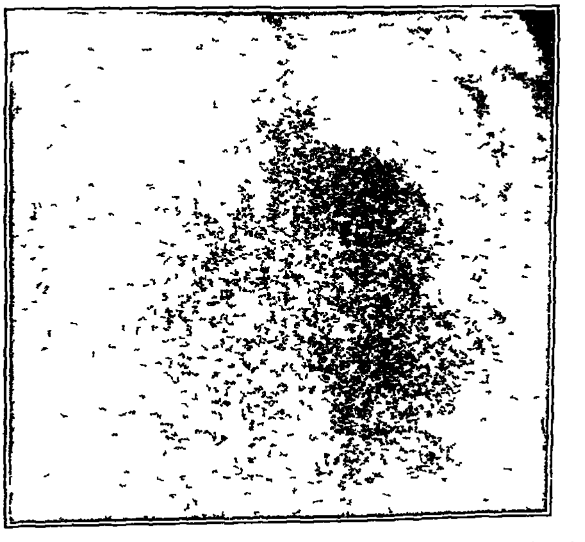
The patient was discharged on Sept 17th and remains under observation Her general condition is still fair and the physical signs unaltered

Diagnosis

In discussing this case we must consider (*a*) the interpretation of the cardiac physical signs above described, (*b*) the cause of the pulsation of the veins, and (*c*) what light, if any, is thrown upon the significance of abnormal venous pulsation in general

Cardiac Lesions—There can be little doubt the case is primarily one of mitral stenosis and auricular fibrillation The electrocardiogram and the polygraph tracing which shows the absence of "a" waves confirm the diagnosis of fibrillation The degree of cardiac enlargement, the large area of systolic retraction of the chest wall, the wavy character of the cardiac pulsation, and the radiographic appearance of the heart, all point to the presence of old obliterative pericarditis with extensive adhesions to surrounding structures Such a condition could be simulated only by pericardial effusion or aortic incompetence The former is excluded by the duration of the signs, the general condition of the patient, and the radiogram, in support of the latter there is no direct evidence on examination

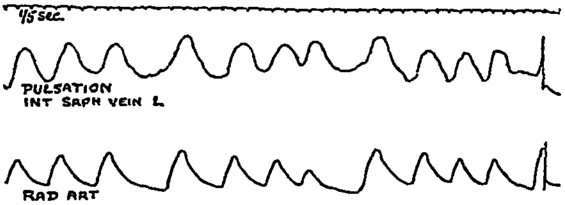
Fig 2



Radiogram showing extreme enlargement of heart both right and left The cardiac outline is seen within the shadow of the large mammæ

Apart from the abnormal condition of the veins and the liver, there is little evidence of a *gross* tricuspid regurgitation. A separate and distinct tricuspid murmur was never heard The size of the right heart is by no means out of proportion to the general increase in the size of the whole heart. The other clinical features of gross tricuspid incompetence are conspicuously absent Considering the great degree of general cardiac disability, there was always remarkably little cyanosis, and except under conditions of stress, little dyspnœa The lungs were almost free from congestion, and œdema of the legs was not present during her last stay in hospital The veins of the face and neck were not distended during periods of rest, and Bamberger's jugular bulb was never present The urine was never abnormal It will be observed, however, that I have qualified the term tricuspid regurgitation by the adjective "gross," for there is reason to believe that minor degrees of regurgitation at this valve are by no means uncommon. At autopsy, lesser endocarditic changes are commonly found in the tricuspid valve of hearts showing the more obvious pathological lesions of the mitral valve and pericardium Thus, at the Pathological Institute of the London Hospital, it was found that in 51 consecutive examinations at which mitral endocarditis was found, 22 (42 per cent) showed organic changes in the tricuspid valves The frequency with which this valve is affected in acquired heart disease seems from the general descriptions in text-books to be insufficiently recognised Moreover, quite apart from the lesser degrees of regurgitation occurring as the result of organic changes in this valve, it is well recognised that incompetence may readily occur in a normal heart under conditions of the slightest strain on the right ventricle—long, indeed, before such strain is great enough to produce abnormal objective signs in the patient John Hunter[13] and Richerand[24] both considered the tricuspid valve to be naturally incompetent, and Wilkinson King[15] in his classical experiment on the dead heart showed that this valve would not prevent the regurgitation of water even under moderate tension

Fig 3



Polygram showing, above, the pulsation obtained from a receiver applied to a tributary of the left saphenous vein above the ankle and, below, the irregular radial pulse

Conditions giving Rise to Abnormal Venous Pulse

There are two main types of venous pulsation in the peripheral veins—viz, the centripetal and the centrifugal

Centripetal Pulse—In this type the pulse wave is propagated from the periphery towards the heart, and nearly all the recorded cases of peripheral venous pulsation are of this nature Moreover, it is now well established that it may occur in both normal and abnormal states Thus Wilkinson King[15] observed it in himself after taking a heavy meal, and discussed its occurrence in the limbs as the result of warmth and exercise Similar observations were made by White[28] and others Such pulsation has also been described in a variety of pathological conditions—e g, neurasthenia, chlorosis, fever, and (most often) in aortic incompetence Both Quincke[23] and Broadbent[2] described it in such cases, and recognised on clinical grounds that it was due to the transmission of the pulse wave in the arterioles, through the capillaries to the veins This has also been demonstrated experimentally Palmer[21] produced it in a frog's leg by obstructing the venous return, and Claud Bernard[1] obtained pulsation in the veins of the submaxillary salivary gland as the result of dilatation of the arterioles following stimulation of the chorda tympani nerve

Centrifugal Pulse —This is the form occurring in the case above reported For the most part it has been ascribed to tricuspid regurgitation—the immediate retrograde propulsion of blood from the right ventricle to the right auricle and thence to the great veins—and no doubt this is the simplest mechanical explanation It is now well recognised, however, that such pulsation may occur quite independently of any tricuspid lesion Vaquez[26] emphatically declares that the examination of the venous pulse gives no indication whatever of the condition of the tricuspid valve Graves,[7] cited by Mackenzie,[16] attributes this form of pulsation to the independent contractility of the walls of the veins themselves The ability of the great veins to contract was first described by Haller[8] in 1757 Brunton and Fayrer[3] demonstrated such contractions in the pulmonary veins of a cat, and McWilliam[18] described a rhythmic contractile state of the ostia of the great veins in fish

Two Varieties of Centrifugal Venous Pulse

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The "v" wave in this case occurs very early in the cardiac cycle and this is a common feature of auricular engorgement Normally it results from an "overfilling" of the right auricle towards the end of ventricular systole, but when the auricle is constantly full, as must be the case here, the effect of overfilling will manifest itself by distending the cervical veins at the beginning of ventricular systole At this time, too the retrograde wave from the contracting right ventricle will be transmitted to the jugular veins, and tend to overlap and reinforce the "v" wave due to auricular "overfilling."

Although auricular stasis would explain the mechanism by which the pulsation is propagated to the veins, it seems hardly enough to account for the extent and degree to which it is observed in this case Two contributing factors must be considered —

(*a*) *Adherent Pericardium* —Evidence proving the presence of an adherent pericardium has been given, and the effect of this on any tendency to venous pulsation has been discussed

It was observed that when this patient was at rest the cervical veins were at no time markedly distended, whereas during diastole distinct flattening occurred Little attention has hitherto been given to the part played by pericardial adhesions in abnormal venous pulsation Many, indeed have denied it This is certainly not a constant factor, but it is at least significant that in a series of ten consecutive cases in which definite abnormal venous pulsation in the neck was recorded, and in which the heart was examined at autopsy, pericardial adhesions were present in six of them, and in two of these cases there was no evidence of a tricuspid lesion either during life or at necropsy.

(*b*) *Varicose Veins* —Attention has also been drawn to the great varicosity of the veins of the legs Varicose veins have long been attributed to a congenital weakness in the structure of their walls, a deficiency in the function of their valves, or both There is, therefore, some justification for considering that there may be a general incompetence of all the veins in this case The importance of local changes in the veins themselves as a factor in venous pulsation was fully discussed by Friedreich[5] who refers to a case described by an earlier writer, in addition to several he himself observed It seems not unreasonable to suppose, then, that the marked heave of the venous impulse, as seen in the legs, for example, may be partly explained by the state of the veins themselves

The question of the liver pulsation is beyond the scope of this paper It is now well established that it is always similar in character to the centrifugal venous pulse in the neck, and depends upon the same mechanism for its production Acting like a sponge it rapidly becomes distended with blood as soon as sufficient stasis and congestion in the right side of the heart occurs Wenckebach [27] has shown that this is always more marked in those cases where the pericardium is adherent Any change in venous pressure within the right auricle will be readily transmitted to the liver by the large hepatic veins with which this chamber is in direct communication

An interesting point already noted was the absence of pulsation in the retinal veins in this patient As a rule, where the pulsation in the peripheral veins is well marked, a similar pulsation is seen in the retina As was suggested by Dr Lewis Smith the large cavernous sinus with its rigid walls may well absorb much of the force required for propagating the venous stream backwards, and so the pulsation reaching the very small retinal veins may be reduced to a minimum

Prognosis

No description of such a case as this would be complete without some reference to prognosis Hitherto venous pulsation occurring in the extremities has always been regarded as evidence of advanced heart failure and of grave prognostic significance. The following statement by Kerr and Warren[14] seems to represent the general opinion "Pulsations elsewhere than in the neck and basilic veins, veins of the hand, and the retinal vessels, seem to be uncommon in our experience, except in cases of marked decompensation with pronounced regurgitation and engorgement In all such cases the prognosis was very bad and the patient died soon after. In this they resembled the cases in the literature." In the case above described pulsation has been observed for over 18 months, and it is quite possible that it existed before then As her condition is at present not much worse than it was when pulsation was first noted it must be concluded that venous pulsation in the extremities is not necessarily incompatible with a continuance of life for a period of many months

Summary

A case is described of auricular fibrillation, mitral stenosis, and adherent pericardium, exhibiting remarkable pulsation in *all* the superficial peripheral veins The absence of clinical features suggesting gross tricuspid incompetence is noted The more important causes of general venous pulsation are discussed, and evidence is adduced to show that tricuspid regurgitation is neither a constant nor an important factor.

A combination of (1) stasis and engorgement of the right auricle, (2) adherent pericardium, and (3) relative weakness, congenital or acquired, of the walls of the veins is considered the most likely explanation in this case Finally, it is pointed out that such pulsation need not necessarily affect the immediate prognosis

My thanks are especially due to Dr Lewis Smith for permission to publish this case, and for his valued help and advice Prof H M Turnbull allowed me to consult the records of his department in this connexion To Dr John Parkinson I am greatly indebted for the cardiogram, and for suggestions and help

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Clinical and Laboratory Notes.

A CASE OF SPIROCHÆTOSIS ICTEROHÆMORRHAGICA

By A. Cowan Guthrie M B . C M Edin

Spirochætosis icterohæmorrhagica is a rare disease in England, although several cases have been described recently from Norfolk [1] Owing to its rarity I venture to give a somewhat detailed account of the history, various phases and progress of this affection as it occurred in a patient whom I attended.

History —On April 23rd, 1925 I was first called to see the invalid, a single lady in early middle age. She informed me that she had just returned from a visit to Egypt and that towards the end of her stay there she had begun to suffer from general malaise. Her health did not improve during the homeward journey and in addition a tendency to sickness began to supervene. On her arrival in England she still felt rather weak and out of sorts although not seriously ill

Examination.—The patient was lying in bed looking apathetic and somnolent, the pulse 76 temperature 98 6° F, the tongue coated with a yellowish-white fur On abdominal examination no splenic enlargement could be detected or tenderness in the region of the gall-bladder, hepatic dullness was only slightly increased In the somewhat poor light of the room the skin generally showed a yellowish tinge which took on a deeper hue in the conjunctiva. The usual remedies for such a condition were prescribed—a mild saline in the morning a mixture of bismuth and bicarbonate of soda before food, a euonymin pill at night, and a milk diet.

As, however, the patient's condition did not improve I was called to see her again on April 27th. The jaundice was now apparent and she complained of sickness On re-examination no tenderness over the gall-bladder or over any part of the abdomen could be detected.

The urine on examination showed a few leucocytes and numerous epithelial cells of vesical and renal origin (pelvis and calyces), all bile-stained. No tube casts were present. Chemical examination showed a trace of albumin no blood, a positive reaction for bile 1 per cent., and also the presence of indican. Examination of the blood showed hæmoglobin deficiency. There was variability of the red cells in size and shape, many cells appearing frayed, and there was variability also in their staining qualities although there was no basophilic degeneration. No spirochætes were found, or evidence of protozoal infection in either the red or white cells The differential count of the white cells presented fairly normal features, the leucocytes showing variable staining qualities as well as evidence of degenerative changes by the presence of fatty granules The Widal test was negative.

Up to this time the case was considered one of simple catarrhal jaundice which had resisted the usual methods of treatment. In order to determine whether or not there was obstruction van den Bergh's test was utilised, the result being indirect reaction positive with negative direct reaction, indicating toxic jaundice including catarrhal.

On April 28th the patient seemed somewhat better and the slight improvement was maintained throughout the next day till late in the evening, when there was a recurrence of the sickness the vomit being dark in colour This condition slightly improved during the next 24 hours

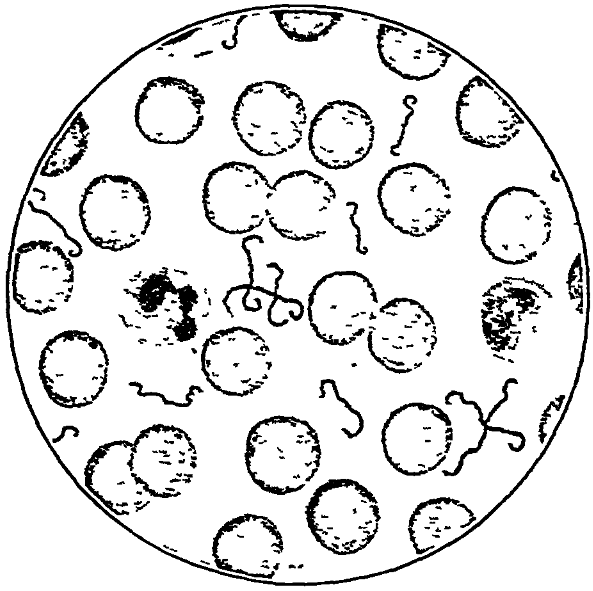
When I called on the morning of May 1st the patient looked very ill, the pulse was feeble, the temperature subnormal, and there was occasional retching and vomiting of dark coffee-ground material The next day the patient's condition appeared critical and she tended to lapse into a semi-comatose condition. Colon irrigations of a mixture containing sodium bicarbonate and citrate were administered and this mixture also was given orally with no beneficial effect It became apparent that the patient was suffering from profound toxæmic jaundice and symptoms of bronchial catarrh now appeared

On examination of the blood collected on May 1st spirochætes were discovered for the first time, and in enormous numbers • they were present also though to a lesser extent, in the urine collected on the same date Immune horse serum was given intramuscularly with no beneficial result. Lumbar puncture was performed to obtain cerebro-spinal fluid and on examination this showed no excess of either albumin, globulin, or chlorides. It contained 4 1 lymphocytes per c.mm. and no spirochætes were seen in the deposit The Wassermann reaction gave a clear negative result

On May 3rd the patient was in a very collapsed state and only semi-conscious; intravenous saline injections containing sodium bicarbonate were given, adrenalin was also administered, but the patient gradually sank and died the following day A blood film taken two days before death showed hæmoglobin deficiency; the red cells showed alteration in shape and size, polychromasia was exhibited, although no basophilic degeneration was noticed; platelets were few. The white cells showed vacuolation and fraying of the nuclear material.

Discussion

It is to be remarked that the symptoms shown in this case were not quite classical. At no time was there any great rise of temperature, 99° being the highest, and in point of fact the temperature was subnormal The patient had the usual slow pulse and the symptoms gradually deepened from a catarrhal to a grave toxæmic type of jaundice There was no glandular swelling, but hæmatemesis with semicoma were the salient features of the last phase. It is somewhat important to observe that even at an early stage there was variability in the size, shape, and staining qualities of the red cells that many cells appeared frayed, and hæmoglobin was deficient. The leucocytes also showed variable staining qualities as well as evidence of degenerative changes



Spirochætes seen in film of blood.

It is well known that rats are carriers of this disease, their urine, teeming with spirochætes can contaminate food and drink and that this is the usual source of infection for human beings It was noted that there were rats in the ships in which the patient made the journey to England.

Authorities state that the spirochætes may be observed in the peripheral blood till the fifth or even the seventh day by dark-ground illumination. By inoculation of the patient's blood (till the seventh day) into a guinea-pig the animal develops albuminuria and jaundice and the spirochætes will be found in its liver and blood After the seventh day the spirochætes are entirely absent from the blood, passing into the internal organs; between the ninth and fifteenth day they may be seen in the urine. Before death, however, in this case they appeared in the blood and also in the urine

A reproduction of a drawing is given to show the disposition of the spirochætes as they appeared in the film of the patient's blood.

I have not entered into details of all the therapeutic measures adopted during the illness which varied from time to time as the patient s condition demanded and included a strict diet of milk, citrated and otherwise, fruit juice, and bland fluids; irrigations containing a mixture of sodium bicarbonate and citrate, rectal injections of dextrose and starch, also injections of adrenalin and strychnine, inhalation of oxygen, &c

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[1] Brit Med Jour. 1926, ii., 108

Conclusions

It appears to me that in all cases of jaundice, however mild, examination of the blood for spirochætes should be a routine measure Should they not be found the blood cells should be examined for degenerative changes, and if these be present, then the agglutination test with stock spirochætes should be performed at once, if this is found positive the antiserum for this disease should be injected without delay This treatment has been found wonderfully effective in the early stages of the disease

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A CASE OF MENINGITIS

DUE TO THE TUBERCLE BACILLUS AND A DIPLOCOCCUS CLOSELY ALLIED TO MICROCOCCUS TETRAGENES

BY J TODESCO, M D FLORENCE, M R C S ENG, D P H,

RESIDENT MEDICAL SUPERINTENDENT, BOROUGH HOSPITAL, CROYDON

THE following case is of interest on account of the findings in the cerebro-spinal fluid and the condition revealed at autopsy.

S M., a boy, aged 2, was admitted to the Croydon Borough Hospital on Oct 24th, 1926 He had previously suffered from measles, and, one month ago, from diarrhœa and vomiting There was a history of tuberculosis in both parents, the disease being active in the mother at the time of his admission A fortnight before he had become irritable and sleepy, on Oct 16th he was put to bed as he appeared worse and was feverish, and the day before admission he started having convulsions and became delirious with head retraction and rigidity of limbs and neck

On admission the child appeared semi-conscious, was flushed, and moaned constantly In addition to rigidity there were frequent twitchings of limbs The abdomen was not tender or wasted, *tache cérébrale* was marked The heart sounds were rapid and weak and there were some râles over both lungs, with rapid, though not laboured, breathing The pupils were dilated and fixed and there was some bilateral conjunctivitis and photophobia The right knee-jerk was increased, the left absent, and Kernig's and Babinski's signs were markedly positive on both sides He had constipation and some difficulty of swallowing Temperature 100 8° F on admission On lumbar puncture the cerebro-spinal fluid was slightly turbid, but not under pressure On examination it contained a few lymphocytes and broken down polymorphs and a Gram-positive diplococcus, some in tetrad formation There was excess of fibrin in fluid

Lumbar puncture was repeated on Oct 25th, 26th, 27th, and 28th, amounts varying between 25 c cm and 30 c cm being withdrawn On two occasions there was increased pressure, and on the 28th the fluid withdrawn was clear The Gram-positive diplococcus was present on each occasion and it was also recovered from the blood on culture Tubercle bacilli were not at first found in the cerebro-spinal fluid, but were present in the fluid withdrawn on Oct 26th

After the first lumbar puncture the child was quieter and there was less rigidity and head retraction He had profuse general sweating at times He appeared to improve slightly until Oct 28th when he became less conscious, the rigidity increased, and there were also twitchings of limbs and teeth-grinding Cheyne Stokes breathing was now observed and greater difficulty of swallowing In addition there was retention of urine and diarrhœa His condition grew steadily worse and he died on Oct 29th in coma The temperature kept persistently high throughout being between 100° and 103° and reaching above 104° on two occasions The pulse was always rapid and weak and could not be counted at times, and the respiration rate varied from 14 to 70

Post-mortem Findings —Brain Excess of cerebro spinal fluid in ventricles Extensive gelatinous yellow infiltration of membranes along whole of under surface extending along fissures of brain On the vertex the whole of the right cerebral hemisphere was dotted with small yellow abscesses, but none were present over left hemisphere Petrous bones were healthy Thorax A few caseating glands along bronchi, no free fluid in pleural cavities Both lungs partially collapsed and studded throughout with miliary tubercles no consolidation present, diaphragm normal Pericardium contained about 1 oz of clear yellow fluid, heart appeared normal. Abdomen No free fluid or enlarged glands found anywhere The intestines were normal, the liver slightly enlarged, and the spleen contained miliary tubercles throughout Both kidneys showed some cloudy swelling, but no tubercles

Cultures were taken from the right hemisphere spleen, lungs, and pericardial fluid, and in each case a diplococcus similar to that present in the cerebro-spinal fluid was recovered

The following were the cultural characters of the organism isolated from cerebro-spinal fluid and blood (intra vitam) and organs (*a*) On agar slope after 24 hours' incubation thin porcelain-like smooth growth with crenated margin (*b*) On gelatine stab after 24 hours incubation fine white growth, no gas, some liquefaction (*c*) Sugars lactose, no change, glucose, acid, milk, alkaline (*d*) Staining The organism was Gram-positive and was a diplococcus, arranged in pairs, also in tetrad formation It appeared to be closely allied to the *Micrococcus tetragenes*, but in cultural characters resembled the *M liquefaciens* rather than *tetragenes* (*e*) The organism had no effect on two mice given 0 25 c cm and 0 5 c cm of a broth culture thus differing from the *M tetragenes*, which is pathogenic to mice causing a septicæmia

Discussion

The points of interest in this case appear to be (1) The character of the cerebro-spinal fluid, which in addition to containing tubercle bacilli, contained a diplococcus and was turbid instead of clear as is usual in tuberculous meningitis (2) The cultural characters of the organism, which, though on microscopical examination it appeared like a true *Micrococcus tetragenes*, differed from it on culture and in being non-pathogenic to mice (3) The post-mortem findings The lesions of the right cerebral hemisphere were not suggestive of tubercle and, moreover the diplococcus was recovered on culture from this organ, the spleen, lungs, and pericardial fluid

It appears that the child died from a mixed septicæmia due both to the tubercle bacillus and to a diplococcus recovered from the cerebro-spinal fluid, blood, and various organs Though *M tetragenes*, which the organism closely resembles, is found in suppurative lesions and in the respiratory tract in man, it does not usually cause a septicæmia in human beings

I wish to thank Dr H P Newsholme, medical officer of health for Croydon, for permission to publish this case, and Prof J C Ledingham, F R S, of the Lister Institute, for his help and confirmation of the bacteriological findings, and for applying inoculation tests

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ROYAL MEDICAL BENEVOLENT FUND —The hon treasurer of the Fund gratefully acknowledges the sum of £30 from Dr (Phil) Otto Rank of Vienna, per Dr Marie Moralt

At the last meeting of the Committee 44 cases were considered and £769 13*s* 6*d* voted to 40 applicants The following is a summary of some of the cases relieved —

Widow, aged 65, of L R C P Edin who practised in London and died in 1919 Applicant has worked as a deaconess for years until August last, when she had to give up on account of leg trouble Total income £90 per annum Rent 11*s* a week Voted £26 in 12 monthly instalments

Widow, aged 45, of M R C S who died in November Left with girl of 14 and boy of 12 No private income and only £100 from Insurance Has had £150 from mother in law but it is uncertain whether this will be continued Now lives in three rooms at a rental of 12*s* a week Voted £20

Widow, aged 53, of M D who died in December last Left with six children ages 11 to 21 Only the eldest one earning One son studying for the law Others at school Voted £30

M D, aged 83 Married one daughter aged 40 Owing to financial losses had to take up practice again Receipts do not meet expenses £200 only received this year Private income £100 Rent £117 Voted £40 in 12 monthly instalments

Daughter, aged 68, of M R C S who died in 1881 Owing to bad health is unable to earn much Only made £6 by fancy work £30 per annum from Yorkshire Medical Society Few small gifts from friends Rent paid by a friend Voted £26 in 12 monthly instalments

M R C S, aged 73, married, three children Has had to give up work on account of old age and deafness Wife has a post in a school Children are unable to help in any way Applicant has just lost an allowance of 10s a week through death of a sister Has the old age pension Voted £10 in 12 monthly instalments

L R C P Edin, aged 47, married, one daughter Receives £300 a year as an assistant Was taken ill and had an operation for appendicitis Now only able to do light duty and has to pay locum to do night work Asks the Fund to help with extra expenses connected with his illness Voted £35

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos street, Cavendish-square, London, W 1

Medical Societies.

ROYAL SOCIETY OF MEDICINE

COMBINED MEETING OF THE SECTIONS OF TROPICAL DISEASES, DERMATOLOGY, AND THERAPEUTICS

THE TREATMENT OF LEPROSY

AT the combined meeting held on Feb 2nd a discussion took place on the treatment of leprosy Prof R T LEIPER, F R S, President of the Section of Tropical Diseases, took the chair

Dr J M H **MACLEOD** said that conditions obtaining in the St Giles's Homes for British Lepers gave an excellent opportunity of appreciating the value of different forms of treatment, especially as the patients, many of whom were well educated, were able to cooperate in efforts on their behalf Outstanding figures in the advances which had been made since 1909 were Rogers and Muir (Calcutta), Power, Dean and Macdonald (Hawaii), and Denny and Brill (Philippines) The tendency to remission of the disease made it necessary that any remedy should have a prolonged trial before being approved It was difficult to say that a case of leprosy was cured, as even after years of apparent freedom from the bacilli recurrence was liable to take place It was now generally recognised that the disease tended to be self-curative, but the process involved long years of suffering which left many mutilations

Treatment might be either general, local, or specific It was impossible to exaggerate the importance of placing the patient under the best hygienic conditions with ample good food and a cheerful environment The patients seemed to do best in high dry altitudes, summer usually brought improvement and winter relapses Local treatment was palliative and symptomatic and had but little influence on the general course, freezing of isolated nodules with carbon dioxide should not be done without great caution Specific treatment included the use of (1) metallic preparations, (2) sera and vaccines, and (3) certain oils and their derivatives Little could be said for arsenic and mercury (either perchloride or sozoiodolate), but benefit had been attributed to intramuscular injection of tartar emetic or colloidal antimony, the latter being preferable because it caused little irritation and had practically no toxic effect Iodide of potassium had also been employed either alone or with chaulmoogra oil, and had brought about flattening of nodules and healing of ulcers Sera had not so far been of value in the disease Koch's tuberculin produced a strong reaction in leprous patients In some cases this was followed by temporary improvement, but in others by intensification of the disease, and its use had the additional risk that it might light up latent tuberculous foci, since leprous patients frequently had both diseases Benefit had been claimed from the use of non-specific vaccines prepared from *B typhosus* staphylococcus and *B pyocyaneus*, which produced a reaction, but similar effects followed the injection of milk-albumin It was the general experience that patients benefited by the use of vegetable oils and their derivatives in direct proportion to the quantity tolerated Sir Leonard Rogers had shown that unpleasant drawbacks due to the oil could be obviated by substituting either salts or esters of their fatty acids these being given by injection Dr MacLeod still preserved an open mind about the specific action of these remedies

Dr **ERNEST MUIR** (Calcutta) contributed a paper, which was read by SIR **LEONARD ROGERS**, F R S Dr Muir agreed that there was not yet any real specific for leprosy but submitted that by following a certain line of treatment all active signs of the disease could be made to disappear permanently in early cases, though there was liability to relapse if the general health was markedly lowered. In Calcutta treatment was being carried out on the following general lines. (1) treatment of any accompanying physical or mental disease; (2) rectification of diet; (3) exercises, gradually increased in extent, and (4) use of special drugs, chiefly hydnocarpus oil and its preparations The routine he said was to begin with injections of hydnocarpus oil with 4 per cent creosote, either intramuscularly or by infiltration under the skin of extensor surfaces These injections were given twice weekly, beginning with 4 c cm. and gradually rising to 10 c cm When the latter dose was well tolerated a solution of sodium hydnocarpate in saline (1 per cent) was given intravenously twice a week, beginning with 2 or 4 c cm and rising to 10 c cm This treatment was continued until reaction followed or the veins became blocked; in either event infiltration with oil was resumed In the second stage of the disease care must be taken to avoid untoward results, only small injections being given until the patient had been brought into a good general state In the third stage treatment could be pressed without fear

Three classes of agents broke down lepra cells: (*a*) acute fevers (malaria, kala-azar), streptococcal and staphylococcal infections; (*b*) anything which produced protein shock, (*c*) the injection of irritating substances Vaccines, especially when used intravenously, were very useful in the third stage of leprosy Treatment should be persisted in for from six months to two years after all active signs of the disease had been absent

Dr H W **WADE** and Dr C B **LARA** (Culion Leper Colony, Philippines) sent a contribution which was read by Sir Leonard Rogers They said that the antileprosy campaign in the Philippines at the present time was a three-phase one in which both treatment and segregation played leading rôles The chief medicament employed by them was chaulmoogra ethyl esters, usually with iodine added to reduce irritation Weekly intramuscular injections were used almost invariably. At the San Lazaro Hospital in the five years 1921–25 a total of 250 bacteriologically positive cases had become negative This was largely a collecting-station and could not accommodate all the patients who were eligible to stay. In the Cebu detention camp (where treatment was even less than at San Lazaro) there was a large turnover of cases At the Culion colony new work was started in 1921 with 500 cases, and by early in the following year 1000 cases were under treatment—*almost exclusively* by ethyl esters—while by the end of that year the cases that had been for a time under treatment totalled 4458, the average duration of the disease in these being about eight years Up to Nov 1st last 358 patients had been discharged or paroled 27 had died while in the negative period, and on that date 244 negatives were under observation Of the 358 cases that had now been sent out only four had returned to Culion and three out of 245 paroled For work on a large scale the modern *treatment* was decidedly superior to the older, especially in early cases

Dr **ISABEL KERR** (Dichpalli Leper Institution, India) sent a paper of which the substance was given by Sir Leonard Rogers At this institution treatment began with the ethyl ester of the fatty acids of hydnocarpus oil combined with creosote camphor and olive oil these being given subcutaneously or intramuscularly Following this treatment insensitive patches improved nodules disappeared, and the patient's condition markedly improved. Later the pure ester was given combined with iodine intravenously and intramuscularly, in this way as much as 16 c cm of ester was given to some patients in a week and the early cases which could tolerate such a dosage did well Acute skin cases rarely took the full dosage Sixty-six per cent of cases were very much improved, while 12 per cent had become symptom-free They felt that in early cases, they could depend on a large percentage of successes: in the second stage only small doses must be given owing to the danger of aggravating the disease; in the third stage the drug could be pushed.

Dr J H **SEQUEIRA** referred to the case of a patient with advanced maculo-anæsthetic leprosy, a European, aged 44, who was given an injection of 100 c cm of a sterile saline solution Within half an hour of the injection he had rigors and the temperature rose to 100° F A few days later he was given a similar injection, and it was again followed by a rigor and the temperature was 101° After this second injection the leprous eruption began to fade A third similar injection resulted in a rigor and a temperature of 100 4° Thereafter the lesions had disappeared and during the following 16 years had not recurred

Dr. G **PERNET** said that he had found that the best treatment of leprosy in the nodular form was chaulmoogra oil, but it must not be looked upon as in any sense a specific Those who undertook treatment of this disease must remember how remarkably the bacilli were generalised throughout the body He emphasised the importance of hygiene, good food, and fresh air, and suggested the use of thyroid extract because it increased general metabolism

Dr G C **LOW** agreed there was not yet available any specific cure for leprosy, but urged that the work being done on the subject, apparently with a considerable measure of success, should be persisted in

Mr T A **HENRY**, D Sc (Wellcome Chemical Research Laboratories) said that it was thought by chemists that the beneficial action of chaulmoogra and hydnocarpus oils in leprosy was due to chaulmoogric acid and hydnocarpic acid, which were now being administered in the form of sodium salts, ethyl esters, or carefully refined natural oils Sir Leonard Rogers had pointed out that in order to be useful the acids must be employed in the liquid state, or nearly so, at the body temperature A mixture of the two acids gave the best results, and American workers had been so impressed with this fact that they were importing the seeds of the various trees for cultivation in their own country Research had shown that mercury, gold, and copper compounds appeared occasionally to exert a favourable influence on both tuberculosis and leprosy. Most hope seemed to centre round the mercury derivatives

Dr **ROBERT COCHRANE** spoke of his experiences in connexion with the Mission to Lepers He remarked that hydnocarpus oil with 4 per cent creosote was now the cheapest of the remedies

Dr E A O **TRAVERS** gave an account of his work as physician at the Qualalumpore establishment in the Federated Malay States There the main treatment was by the powdered whole nut of the hydnocarpus Of his cases 81 per cent were improved and 11 5 per cent became negative under the treatment, while the improvement in the general health of most of the patients was remarkable The remedy was taken by the mouth twice daily, and was popular Injections were given in addition when a case did not seem to respond well

Dr **JAMES HASSON** said he had found chaulmoogra disappointing, but most of his cases had the disease in an advanced form He did not agree that the results of treatment by vaccines were due to protein shock, he thought that the action of vaccines was specific

Dr F. **HALL** spoke of his work of ten years at Fiji Leper Asylum The tendency of leprosy, he said, was towards cure if cases came under care and were given the best conditions early Intercurrent diseases must be carefully treated in every case

Sir **LEONARD ROGERS** said that though a 3 per cent solution of sodium salts of the oils caused irritation in some patients, it did not do so in all, and he had found that a small vein would stand six injections of a 1 per cent solution without pain, and that here was no precipitation in the vein The cost was five doses for a penny Moreover, the 1 per cent solution was as beneficial as the 3 per cent Recent researches showed that the situation was now much more hopeful Leprosy was largely a question of house infection and means were at hand to reduce the disease to very small dimensions in two or three decades In South Africa early sufferers were seeking to enter the sanatoria —a welcome change in the public point of view He concluded by paying a warm tribute to the work being done in this matter by the Americans

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MEDICAL SOCIETY OF LONDON

AT a meeting of this Society held on Feb 7th, Sir **HUMPHRY ROLLESTON**, the President, in the chair, Dr F M R **WALSHE** opened a discussion on

POLIOMYELITIS.

His paper appears in full on p 326 of this issue

Prof **JAMES McINTOSH** gave a summary of the experimental work which had been done on the ætiology and pathology of the disease Acute anterior poliomyelitis, he said, was now a very clearly defined disease at the stage at which the paralytic symptoms had developed Knowledge of its pathology was comparatively recent It had been placed on a sound basis by the monographs of Harbitz and Vickman (in connexion with the Swedish epidemics) and by Muller, Lansteiner, Levaditi, and others In postmortem examinations of acute cases of the disease evidence was found of a toxæmia, mild degeneration of internal organs was found, and general enlargement of lymphatic glands, including those of the intestinal canal In the central nervous system, and especially in the cord, there were minute hæmorrhages and congestion of the grey matter Lesions of the central nervous system were practically confined to the grey matter of the cord; only rarely were there marked lesions in the cortex There was definite involvement of the pia-arachnoid, particularly of the perivascular type—i e, in the perivascular lymphatic sheath of the blood-vessels of the cord The pia-arachnoid was found to be densely packed with cells In the anterior horn of the grey matter of the cord there was an intense inflammatory reaction, with minute hæmorrhages and destruction of the ganglion-cells Later these were removed by the phagocytic cells The main cells found were lymphocytes, but there was also a small number of the larger endothelial leucocytes, and some polynuclear leucocytes, and sometimes plasma-cells The chief lesion of the cord was a degeneration of ganglion-cells, followed later by complete disappearance of the cells—hence the anæsthesia and the complete paralysis which developed Softening of the cord occurred only in rare cases Histological findings confirmed the conclusion arrived at earlier on clinical grounds that this disease was an acute infection

In 1909 Lansteiner and Kocher, working in Vienna, had succeeded, for the first time in transmitting the disease to monkeys, they took the spinal cord from a fatal case of the disease, ossified it in saline, and injected it into two monkeys by the intracerebral route, following a trephine opening, 1 c cm of the fluid was injected and the monkeys developed the disease 16 to 18 days respectively after the injection, and had paralysis of the lower limbs One of them died of the disease, and the lesion found in its cord was absolutely identical with that found in human cases Confirmation of this had since come from practically every civilised country In 1912 and 1918 Prof H M Turnbull and the speaker had successfully done the same inoculation It was not so easy to transmit the disease to rabbits

The Incubation Period and the Virus

It was always difficult to work out incubation periods of human infections, but work on monkeys showed an incubation period varying between 4 and 17 days, it worked out in a number of cases at 9 to 10 days In the Swedish epidemic the period was 14 to 16 days The monkey when given the disease showed prodromal symptoms, was out of sorts, and lost relish for food, it had tremor of limbs and the temperature was raised In from 24 to 48 hours paralyses suddenly supervened, commencing usually in the lower limbs and thence extending upwards. In the monkey, in most instances, the disease was fatal In a few it was mild and transient and recovery was quick Investigations on monkeys showed that the responsible virus was a filter-passer; it could even pass through some of the coarser porcelain filters For that reason it had not yet been cultivated. The research revealed the curious fact that the virus had some extraordinary powers of resistance. An infected cord could be completely dried over caustic soda and yet would remain virulent for 24 days; it could be kept in ice indefinitely, or frozen, without its virulence being thereby diminished Even a 50 per cent. dilution of glycerine had no lethal effect on the virus which also showed a special resistance to antiseptics, apparently 5 per cent carbolic had no effect on it On the other hand, it was very susceptible to a 1 in 1000 solution of potassium permanganate, which killed it at once Hydrogen peroxide was in the same category This was important as it affected prophylactic measures directed to the nasopharynx. The question of the distribution of the virus in the body had been worked at chiefly by inoculating monkeys with the organs of monkeys which had the disease or with the organs of human beings who had died of the disease In the monkey disease wherever the inoculation was made—brain, peritoneum skin nerve—the result and the succession of symptoms was the same being chiefly due to a cord lesion This demonstrated an extraordinarily selective action on the spinal cord The blood very rarely contained the virus nor did the spleen liver or kidneys It had been discovered only in the central nervous system and the lymphatic system

Mode of Spread

Vickman had attributed one outbreak in Sweden to contamination by milk continued Prof. McIntosh, and many patients suffered from gastro-intestinal disorder. It was not however, easy to give the disease to monkeys by infecting their food The common portal of entry of the virus seemed to be the nasopharynx Plugging the nasal cavity of the animals with infected material sometimes succeeded, but it was evident that the mucous membrane there offered some resistance This was generally overcome by abrading its surface The spread of the disease by excretions and secretions had also been investigated Vickman in 1905, had brought forward evidence of its spread by means of carriers, also by drawings and books There had not yet been any satisfactory evidence that bites of insects played any part in disseminating the disease It seemed to be mainly spread by direct contact—i.e., by contamination by the saliva and by coughing The nasopharyngeal mucus had been shown by Kling to contain the virus for many weeks after an attack of the disease Patients who had recovered from one attack remained immune for the rest of their lives· monkeys which had recovered from an attack even if abortive, could not again be inoculated with the disease and their serum was found to have antibacterial properties This had been the basis of attempted serum therapy, and good results were claimed for such treatment in France and America The quick onset of the disease was however a practical difficulty. Experimental attempts had been made to immunise monkeys by vaccination, either by means of a killed virus or an attenuated living one, and there had been some success As regards general measures of prophylaxis every effort should be made to keep the nasopharynx as free as possible from infection. As the virus remained in the throat for some time after the disease had apparently subsided cases should be isolated for about three weeks Estimates of the prophylactic value of serum must rest on future experiment In the face of a big epidemic the speaker did not see why attempts to vaccinate with the killed virus should not be made He concluded by pointing out possible diagnostic errors especially in regard to progressive muscular atrophy of the infantile type, Landry's paralysis and forms of toxic neuritis

Discussion.

SIR THOMAS HORDER said that Dr Mervyn Gordon, whom illness prevented from being present, had sent him a communication in which he said that the characteristic lesions in poliomyelitis were two—the condition termed neuronolysis and that named neuronophagia Thus there were the perivascular infiltrative lesions, which were not so peculiar to this disease and the more purely nervous specific lesions involving the cells of the grey matter

Sir Thomas Horder then spoke of the differential diagnosis of poliomyelitis from other acute infections which had little or no specific effect on the central nervous system. He said that pneumonia and especially the broncho-pneumonia of children, might resemble poliomyelitis when the subarachnoid was involved, and that in any case the possibility of encephalitis and infective polyneuritis must also be carefully borne in mind Three times he had seen retention of urine as the first symptom in poliomyelitis, all three patients being young adults Focal pains at the onset of the illness were significant, and should arouse suspicion. Generalised and especially local or focal tenderness and sensory disturbance he placed in the same category. Hexamine in full doses at the earliest possible moment seemed a likely mode of treatment; he had also given salicylate of soda intravenously morning and evening for three to six days In this disease the virus was a filter-passer, and he suggested there was an affinity between groups of infecting agents and drugs He had also given as early as possible, collosol iodine intravenously.

Dr. JAMES COLLIER said that the finding of the virus in the mouth of a person 17 days after an attack did not mean that that person was capable of infecting a fresh patient with the disease. He related a number of facts which had strengthened his belief that this was a disease which was disseminated by non-suffering carrier cases

Dr. A. F. HURST dealt with the administration of hexamine in the disease He believed that the reason it had not given uniformly good results was that the doses given were not large enough; 10 even 20 gr. thrice daily was not nearly enough. If 60 gr. each of potassium citrate and sodium bicarbonate were given at the same time 100 gr. of hexamine could safely be given thrice daily without any anxiety about the urine He had not carried out this treatment in poliomyelitis but he had in encephalitis and it was easily borne by the patients

Dr. H. M. RAVEN spoke as a patient who had recovered from the disease and gave an account of the Broadstairs visitation of poliomyelitis. There had been two or three cases at each of several schools, but half the epidemic had been in separate houses. From his observations and experience he could not consent to the idea that dust and flies could be left out of the agencies of spread During the epidemic he had found constipation very rife as well as some cases of suppression of urine He reminded members that macerated flies had been proved to be capable of infecting monkeys

Mr. R C ELMSLIE said that 30 per cent or more of the cases of past poliomyelitis which he saw as a surgeon had not been correctly diagnosed when they had the acute disease The brief febrile condition was apt to be unnoticed in little children. A large number of cases were not part of epidemics, but isolated cases Often the diagnosis had to be made from some form of arthritis of the hip-joint. Two or three years ago he with others had interested himself in the matter and had got the London County Council to agree to set aside a certain number of beds for segregating cases of poliomyelitis but the purpose had been largely spoiled by the decision that to these reserved beds no case could be admitted until three months had elapsed since the onset of the disease.

Dr WALSHE and Prof MCINTOSH very briefly replied

LIVERPOOL MEDICAL INSTITUTION

A meeting of this Institution was held on Jan. 13th, when Prof. D. P. D. Wilkie read a paper on the

Place of Surgery in Treatment of Diseases Associated with Enlargement of the Spleen

Until quite recent times, he said, the interest of surgeons in the spleen had centred mainly in the operative treatment of traumatic rupture of the organ and in the rare cases of torsion of a wandering spleen. Increasing knowledge of its functions, and thus of the rôle which the spleen possibly played in diseases in which it was manifestly enlarged, had encouraged attempts to remove it in cases of splenomegaly. A phase of what was, in fact, experimental surgery had then set in, and the effect of splenectomy on the course of diseases associated with splenomegaly had been studied intensively.

The treatment of these diseases should involve constant and intimate coöperation between the physician and the surgeon. In cases of septic infarct of the spleen surgical interference was practically never necessary, the special surgical interest of these cases lying in the likelihood of their being mistaken for a perforation needing immediate operation. In cases of splenic tuberculosis the question of splenectomy should be thoroughly discussed, for it had been found that in certain cases removal of the organ had led to a favourable termination of a long febrile illness. With regard to syphilis, Mayo had first drawn attention to the fact that the spleen might be the fastness in which the spirochæte could lodge and defy all specific drug treatment, and had shown that splenectomy would permit of rapid cure by medicinal means. Operation for splenic anæmia or Banti's disease presented two main difficulties. In some cases extensive and dense perisplenic adhesions might hamper removal, so that in freeing the spleen there might be considerable hæmorrhage and shock. The second difficulty lay with the splenic vein, which was friable from endophlebitis and might tear when ligatured. Special care would obviate this complication. When operation was performed in the late stage of the disease in the presence of hepatic cirrhosis and ascites the combination of omentopexy with splenectomy, as advised by Tansini, appeared rational and had been performed with success in a number of cases.

In diseases of the blood associated with splenomegaly, went on Prof. Wilkie, pride of place should be given to hæmolytic jaundice, for of all the blood dyscrasias with splenic enlargement it was most often successfully treated by splenectomy. The relief following operation in this condition was so dramatic as to be almost unbelievable. There was only one treatment for hæmolytic jaundice and that was splenectomy. It presented no special difficulties in this disease, and extirpation of the organ which was responsible for breaking up and destroying the fragile red cells was immediately followed by the disappearance of all signs and symptoms of the disease.

After discussing other conditions in which the spleen was enlarged Prof. Wilkie concluded by stating that splenectomy had now an established place in the treatment of acquired hæmolytic jaundice, chronic purpura, splenic anæmia, and Gaucher's disease. In certain other diseases it might be carried out with benefit in a few selected cases—namely, in splenomedullary leukæmia, pernicious anæmia, Jaksch's disease, and tuberculous and syphilitic splenomegaly. In a third group of diseases such as malaria, polycythæmia vera and the acute leukæmias, the operation was not indicated.

Dr. S. W. Patterson read a paper dealing especially with the medical aspects of the subject. By radiography, he said, the spleen could be demonstrated (*a*) directly, and also (*b*) indirectly by the deformity of the greater curvature of the stomach or splenic fixture of the colon when these organs were distended with opaque material. He agreed that in cases of acholuric jaundice splenectomy was the treatment of choice, and illustrated the familiar type of these diseases by describing a family of 29 members. Of this family, 17 members were affected and eight of them had had the spleen removed. The operation had brought about immediate relief of the jaundice and lessening of the anæmia, but the fragility of the red blood corpuscles was apparently unaltered, and in one case it was present 18 years after splenectomy. In pernicious anæmia the results of splenectomy were not good, but in purpura depending on a dyscrasia of the blood platelets the operation gave satisfactory results. He emphasised the good results of X ray treatment of spleen and long bones in leukæmia, and concluded by saying that, although the spleen was far from being a superfluous organ, the normal spleen could be removed without seriously injuring health. A spleen acting abnormally was a dangerous organ and was better taken away.

CARDIFF MEDICAL SOCIETY.

At a meeting of this Society held on Jan. 18th, Dr. Alfred Howell in the chair, Prof. E. H. Kettle read a paper entitled

The Story of Experimental Cancer Research

The systematic experimental investigation of cancer, he said, dates from the publication of Jensen's papers in 1902-03, in which was announced the successful propagation of a mammary carcinoma of the mouse through many generations. Jensen's tumour was exhaustively studied in this country and on the continent, and very soon other spontaneous tumours in mice and rats were recognised and made available for further study. Much information about the general biology of malignant tumours and the special features of individual examples was gradually accumulated, but it has become recognised that the study of propagated tumours is only of limited value. In any series of inoculations tumours fail to grow in a certain proportion of the animals. Further, some tumours after a period of progressive growth retrogress and finally become completely absorbed, when the mice in which this has occurred become refractory to further inoculations with the same brand of tumour. These observations fitted in well with the current trend of pathological thought, and the investigation of natural and acquired immunity to the inoculated tumour was entered upon with high hopes. Unfortunately, though mice can be rendered immune to inoculation with tumour tissue, no means has been discovered to control the progress of spontaneous tumours.

About this time, when it seemed that experimental cancer research had reached a dead end, it received a welcome stimulus in the work of certain Japanese investigators, who demonstrated the possibility of producing cancer of the skin in animals by exposing them to irritants, especially tar. This line of research has been fruitful in results and has still great possibilities. It has been shown, for example, that as a general rule cancer of the skin can only be produced by the repeated action of the irritant and develops only after a considerable period of time, a period corresponding to some 20 or 30 years in the life of man. At the same time it is not necessary to apply the irritant throughout the whole of this period; a couple of months' application of tar may be followed four months or more afterwards by the development of cancer. Of even greater significance in their bearing on human pathology are certain observations that tend to prove that a local cancer is associated with a definite constitutional change.

After referring to the study of the cancer cell in cultures in vitro, Prof. Kettle briefly dealt with the recent work of Gye and Barnard. He pointed out that all the work of the past showed that, with one exception, malignant growth could only be propagated by the inoculation of the actual living cell. This exception was the sarcoma of fowls described and studied by Peyton Rous, which could be propagated by a cell-free extract Gye has demonstrated that this cell-free extract contains two substances neither of which is capable of producing a *tumour* when used alone though in combination they can do so. Gye claims that one of these factors is a non-specific living virus and on the optical side he is supported by Barnard's work This work is still very recent but it has received already a considerable degree of confirmation and is obviously of the first importance Indeed its bearing on the general problem of infection may eventually outshadow its application to the more limited pathology of tumours

ABERDEEN MEDICO-CHIRURGICAL SOCIETY

AT a meeting of this Society held on Jan 13th Dr **THOMAS FRASER** Vice-President, in the chair Dr. **ROBERT RICHARDS** read a note on

Some Cases of Dysentery in Aberdeen

Bacillary dysentery, he said was classified under three main headings. (1) endemic occurring in tropical and subtropical countries (2) epidemic usually occurring in the minor form in local outbreaks in this country, and (3) sporadic, occurring in strictly isolated cases where the two previous types were rare or unknown Referring to the work done on infantile diarrhœa and the differences of opinion about the causal organisms Dr. Richards said that American investigators had found that in a large proportion the *Bacillus dysenteriæ* of Flexner was responsible, the proportion found at the Boston Floating Hospital being 75 per cent and at Baltimore 80 per cent. The latest figures for Britain were those of D. Nabarro who had found dysentery bacilli in 13 cases out of 150 treated at the Hospital for Sick Children, Great Ormond-street In the Aberdeen epidemic the first case recorded had been that of a boy aged 7, sent to the Royal Hospital for Sick Children with a diagnosis of intussusception.

He had been ill for two days with vomiting purging, and fever (101 2° F) with the passage of large quantities of blood and mucus On admission he had a pinched, anxious expression the abdomen was retracted and tender, but no tumour was felt Rectal examination caused severe tenesmus with the expulsion of some blood and mucus A tentative diagnosis of ileocolitis or dysentery was made, but in view of the doctor's statement that he had felt a tumour the abdomen was opened No tumour was found, but the colon was thickened and swollen, and the appendix swollen and congested with great enlargement of the mesenteric glands The case was then treated as one of acute dysentery, and the condition rapidly cleared up on administration of magnesium sulphate. The finding of *B dysenteriæ* (Flexner) confirmed the diagnosis.

In this country, said Dr. Richards the diagnosis of intussusception in such cases was not unlikely, but on rectal examination a distinct difference was to be made out In dysentery the tenesmus set up was very great and the examining finger was forcibly ejected followed by the passage of blood and mucus; in intussusception, on the other hand, the rectum was large and roomy—unless a tumour was felt—and no tenesmus was set up

The next three cases described were children aged 8, 4, and 5, all of whom showed typical symptoms of dysentery *B dysenteriæ* (Flexner) had been isolated in two of the cases; examination of the stool in the remaining case had twice been negative for dysentery organisms but this might have been due to delay in transmitting the specimen In the fifth case that of a child of 4, there had been practically the same symptoms but the causative organisms had belonged to the food poisoning group, the *Bacillus aertrycke* An interesting feature of this case was a sequela three years later, when the patient came up complaining of a painful left knee, the pain being evidently referred from the hip-joint where all movements were restricted and a certain degree of fixed flexion was present The temperature was 100° and the pulse correspondingly rapid. Radiographic examination was negative On the same afternoon the patient became sick and developed diarrhœa accompanied by tenesmus and the passage of blood and mucus in the stool A diagnosis of dysentery with toxic arthritis was made and the finding of the Sonne bacillus confirmed this Further confirmation was afforded by the clearing up of both conditions under treatment with saline aperients Dr. Richards said that he believed that there was no previous record of such metastatic joint symptoms from Sonne dysentery although arthritis was a common complication of both Shiga and Flexner dysentery in Macedonia. After describing a further series of three cases of Sonne dysentery he gave it as his opinion that true dysentery was not so rare amongst the general population as was usually stated Treatment with magnesium sulphate was found to be almost specific

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE

A **MEETING** of this Section was held on Jan 28th, Dr G E **NESBITT** the President in the chair

Dr. **MAURICE DRUMMOND** showed three cases of

Ringworm in Children treated by Epilation with Thallium Acetate

The children were aged 6, 4 and 2 years and 5 months The method, said Dr Drummond, had been used successfully in over 500 cases by Cicero and Peter in ringworm schools in Mexico and in over 100 cases by Buschke and Langer in the Rudolph Virchow Hospital in Berlin It was essential that one alone of the salts of thallium should be used—the protoxide of the acetate of thallium. He had used that of Kahlbaum The Germans found that 8 mg. per kg. of body-weight was the most satisfactory dose for children of all ages Peter in Mexico gave 5 mg per kg for children under 5 years of age In each of the children shown 8 mg. had been administered and Dr. Drummond had found it only just sufficient in the case of the two younger children The drug was given in 2 ounces of sweetened water. Rapid and profuse fall of the hair took place on the fifteenth day with the two younger children The fall had not been so satisfactory with the eldest child. The action of the drug was apparently selective, the eyebrows and fringe on the front of the head being unaffected. As X ray epilation could not be carried out in children under the age of 3 he thought that—apart from its general utility—thallium epilation should be of especial value in young children as also in epidemics In the case of the eldest child who had been epilated in November, the hair was again growing well, and it was beginning to grow in the case of the second child who had been done in December. The youngest child had only just been epilated The drug was contra-indicated in the presence of albuminuria In case of partial failure, a further dose must on no account be given within at least two or three months, as the action of the drug was strongly cumulative and symptoms of acute poisoning might develop. Almost meticulous care was necessary in the weighing of the child and of the drug Dr Drummond was not yet sure that a slightly higher dose might not be necessary with older children Constitution climate, and the freshness of the drug were all factors to be considered

The **PRESIDENT** said that the effects of the treatment in the three cases shown were little short of miraculous. He regarded the method as much better than the use of X rays, but of course Dr. Drummond would require a larger experience of it before he could pronounce a final judgment on it

Dr E **FREEMAN** quoted a series of published cases.

Dr W. G **HARVEY** referred to the original experiments with thallium which had been carried out by Sabouraud, and which had been quite unsuccessful. Very large doses had been employed, and this, perhaps, had been the cause of the failure, as very serious symptoms had arisen after treatment including hæmorrhage and purpura This method now seemed to be of great use, quite apart from whether it would replace X ray treatment or not The difficulty of X raying young children, such as Dr. Drummond's patients was very great

After further discussion, Dr Drummond said that Langer in Berlin said that he got the thallium only from one chemist It was stated that the drug deteriorated with age If the drug was fresh, the hair would fall out on the fifteenth day after application, but if the drugs were not fresh when applied, the hair might take three weeks to fall out

Dr V. M SYNGE showed specimens from a case of

Spontaneous Hæmorrhage into the Brain

The specimens were from a young man aged 21 On Oct 14th, 1926, whilst at work he suddenly fell down unconscious He had previously been perfectly healthy and had received no injury of any sort When admitted to hospital a few hours later he was still unconscious, the limbs were rigid and flexed, and occasional clonic spasms occurred The neck was stiff Pulse rate 66, temperature, 99° F, respiration rate, 26 He vomited undigested food several times A catheter specimen of urine contained a fair amount of albumin The blood pressure was normal, and the blood urea 65 mg per 100 c cm

During the following days the temperature rose to 104°, the unconsciousness diminished On Oct 16th 30 c cm of fluid were removed by lumbar puncture It was under great tension and contained a good deal of blood There was no improvement after the puncture The Wassermann reaction of the blood was negative The patient remained semi-conscious, the neck stiffness increased, Kernig's sign was positive, and the limb was stiff but without paralysis On Oct 21st lumbar puncture was again performed, and 35 c cm of fluid under tension removed, the report being a little blood present (fluid otherwise clear) globulin slightly increased, glucose present, no pus, sterile on culture, and no tubercle bacilli present

A dose of 15 c cm of sodium salicylate solution was given intravenously, the high temperature, general condition, Kernig's sign, and character of cerebro-spinal fluid suggesting the probability of encephalitis lethargica The temperature dropped, the pulse rate fell from 100 to 60, but there was no improvement in the general condition The fundus of both eyes was normal The patient got suddenly convulsed, and on Oct 31st collapsed and died in a few hours

At *autopsy* there was no sign of any injury In the anterior horn of the right lateral ventricle there was a mass of clotted blood which had destroyed a large part of the frontal lobe, all the ventricles were full of blood, and there was a mass of effused blood on the base of the brain The heart, spleen, kidneys, and other organs were normal, there was no sign of arterial disease Sections failed to show any evidence of a tumour in the brain Sections of the kidneys were normal

This apparently quite spontaneous hæmorrhage, said Dr Synge, had evidently originated in the right frontal lobe, afterwards bursting into the ventricles and thence into the subarachnoid space

The PRESIDENT said that the case was very interesting, because in so young a patient no one would have thought of making a diagnosis of cerebral hæmorrhage, especially in the absence of the phenomena usually sought for Therefore the case was an important one He thought that the cause of spontaneous hæmorrhage was always difficult to ascertain It was possible to have fairly advanced renal disease with a blood-urea of no more than 65 mg, and he thought that in this case the boy probably had some chronic renal disease He asked if there was anything in the brain to suggest encephalitis lethargica He could not remember having seen cerebral hæmorrhage under the age of 29

SIR JAMES CRAIG said although in this case the blood-urea was greater than normal still the kidneys were healthy, therefore he did not think that it could be assumed that the hæmorrhage was due to any renal disease

Dr SYNGE, in replying, said that on account of the destruction done by the hæmorrhage it had not been possible to examine the artery that had actually ruptured The small arteries seen under the microscope appeared to be perfectly normal, and he thought that an artery was unlikely to rupture unless the pressure inside it was very great Nothing abnormal had been found in the kidneys, and there had been no evidence of nephritis at all, except albuminuria, which had been present at first It had been very difficult, however, to examine the urine as the patient had suffered from persistent incontinence.

Reviews and Notices of Books.

CÆSAREAN SECTION

With a Table of 120 Cases By HERBERT R SPENCER, M D., F R.C P., Consulting Obstetric Physician to University College Hospital London John Bale, Sons and Danielsson Pp 74 6s

Dr Spencer states that this little book makes no pretence to be a treatise on Cæsarean section, but is a record as frank as he can make it of his own experience of the operation He asks those who do not agree with his conclusions to publish a complete and detailed record bearing on the points of their disagreement The publication of a selected series of cases is deprecated, since a proper judgment as to the value of the statistics can only be formed when details are given, and also particulars of the number of craniotomies.

During the last 33 years he has operated on 120 cases, either in hospital or in private, with a maternal mortality and infant mortality-rate of 3 3 per cent and 10 per cent respectively The majority of these cases were derived from University College Hospital Maternity, where during this period over 80,000 labours were conducted He remarks that the small number of cases is partly due to the fact that at this hospital premature labour is induced three and a half times as often as Cæsarean section is performed for contracted pelvis A careful analysis is made of all the cases operated upon, full details being set forth in tabular form at the end of the book Contracted pelvis was an indication for the treatment in 81 6 per cent of cases, whilst 70 per cent were not in labour at the time of operation. The classical midline upper uterine segment incision was employed on all occasions, and the author states his reasons for not using the extra-peritoneal and trans-peritoneal cervical operations The operative technique is discussed in detail, and a strong plea is made for the use of carbolised silk in suturing the uterine incision, the author having abandoned the use of catgut more than 30 years ago

As to the anæsthetic employed, Dr Spencer insists on the use of chloroform until the child is delivered, and open ether subsequently Spinal anæsthesia is condemned, chiefly because the author believes it to be more dangerous than a general anæsthetic As the latter was given in all but one of his cases, this censure of spinal anæsthesia appears a little unwarranted, particularly as it has been employed by others on many occasions without a fatality The author also strongly disapproves of sterilisation of the patient after Cæsarean section and denounces this procedure in no uncertain terms We welcome this record of the personal experiences of a practised surgeon, which is a valuable addition to the literature of obstetrics

DIATHERMY

With Special Reference to Pneumonia Second edition By HARRY EATON STEWART, M D., formerly Attending Specialist in Physiotherapy, U S Marine Hospitals, New York, Consultant in Physiotherapy, U S V B Hospital, New Haven, Conn New York. Paul B Hoeber 1926 Pp 208 $3 00

THIS introduction to the medical and surgical uses of diathermy, with special reference to the treatment of pneumonia, has been increased by 18 pages in its second edition Additional instruction for the application of diathermy to the lungs of adults and children is given The author is now able to speak from experience gained in the treatment of 248 cases of pneumonia—more than three times the number which had been treated when the first edition of the book was published Nearly all have been cases of lobar pneumonia Particulars of 159 are given in tabular form Information is given regarding the number of lobes involved, the type of infecting organism, the day on which the treatment (by diathermy) was commenced, the number of applications and the dosage, the way in which the temperature fell, the immediate effects of the treatment, complications, and the final results of the treatment

The author describes in detail the effects of diathermy on the pulse-rate, respiration, temperature, blood pressure, and its influence on cyanosis and sweating He reviews critically the facts and figures when discussing the influence of the treatment on mortality. Details of a number of control cases are given A comparison of the results obtained by diathermo-therapy with those obtained by other methods of treatment seem to justify the conclusion that the death-rate in pneumonia was lowered when treatment by diathermy was instituted Although the mortality in some epidemics of pneumonia is extremely low, it is unlikely that this fact explains the excellence of the results obtained by the author and his co-workers over a period of five years The original series of cases treated by Dr Stewart were in patients in the U S Marine Hospital, New York The mortality, which was very high—viz , 42 9 per cent in the cases treated by other methods—was reduced to 17 1 per cent in those which were treated by his method A trial of diathermy in the treatment of pneumonia might well be made in this country

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EUROPA YEAR-BOOK, 1927

Edited by MICHAEL FARBMAN, RAMSAY MUIR, HUGH F SPENDER London Europa Publishing Co , Ltd , 6, Duke-street, Adelphi, W C ; and George Routledge and Sons, Ltd With six coloured maps Pp 700 15s

THIS annual survey of economic and social conditions in Europe contains over 15,000 names of leading personalities in all the European countries, summarises the economic and social conditions prevailing at the moment, and provides a directory under the headings of politics, trade, science, art, and literature, in which a large number of biographical outlines will be found It is a successful attempt to give a brief but comprehensive exposition of the numberless subjects which fall within so huge a range, the main grounds for forming an opinion on vital comtemporary questions are furnished, and furnished with a real attempt both at impartiality and at setting down only such things as can be established by fact or fortified by argument It is certain that anyone intimately acquainted with, or expertly advised on, a particular section of activity would often find many gaps in the information supplied, but this may be regarded as due to a rigorous attempt to keep the various and varied material well balanced—an annual survey is not to be confused with an annual encyclopædia Medical men, for example, cannot consult the Europa Year Book in place of the Medical Register, or the Medical Directory, or the contemporary medical press, or the annual reports of the Minister of Health and the Registrar-General for specific or detailed information on particular points in the conduct of medical practice, or on the relations of medicine to the public, the usual sources of information and counsel must be gone to Similarly, members of other professions and callings will find that the sections under their respective professional headings are strictly circumscribed in content, not only for reasons of space, but also so as to preserve proper proportion in the compilation of a compendium Thus students of world affairs may not find an exact answer fitting any individual problem which has presented itself, but they will find fundamental facts with reference to it if it is a problem of vital contemporary interest, the associations, the persons or the literature from which they can obtain what they are seeking will be indicated, while a quantity of assorted facts will be at their disposal to assist them in making further inquiry The lists of learned persons and learned bodies, associations and institutions, may often seem incomplete, they are—but no such lists could ever include all that might seem satisfactory to every reader, while the really dangerous error of attributing distinction in the wrong place has been generally avoided

The publishers may be congratulated on providing at a reasonable figure and in convenient form just such a survey of the world's contemporary affairs as men and women with wide interests desire to have, whether to assist them along a special line or to give them opportunities for broader appreciations

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BRIGHT'S DISEASE

Die Nephritiden und nichtentzundlichen Nierenerkrankungen By Prof Dr H STRAUSS Berlin Urban and Schwarzenberg 1926 Pp 400 M 21

THERE is no alteration in the general arrangement and scope of this, the fourth, edition of Prof Strauss's well-known monograph on Bright's disease The subject is treated from a practical point of view, and the book is especially valuable for the detailed directions which the author gives for the treatment of the various forms of Bright's disease in their several stages His simple classification of the clinical forms makes it easy for a practitioner to find information as to treatment of any particular patient under his care The author maintains a balanced point of view in handling the theories of the ætiology and pathology of Bright's disease The views held by well-known authorities, such as F. v Muller, Munk, Volhard, Fahr, Jores, and Aschoff, are concisely summarised, thus facilitating comparison not only of opinions, but also of nomenclature

The book is divided into two sections The first deals with diagnosis, and contains a good review of the subject of albuminuria, as well as a detailed description of the functional tests and the conclusions that may be drawn from them The classification of kidney diseases, their clinical pictures, and differential diagnosis also belong to this section The second section is devoted to therapeusis The various means of treatment are classified under the heading of causal and symptomatic treatment, the latter being further subdivided into physical, dietetic, medicinal, X ray, and surgical The application of these methods of treatment to the various forms of kidney disease and more important symptoms is then discussed. The book closes with a short chapter on the prevention of the disease, and a useful appendix gives the chemical analysis and calorie value of all foodstuffs and fluids in common use

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STEVENS'S MEDICINE

The Practice of Medicine Second edition By A A STEVENS, A M , M D , Professor of Applied Therapeutics in the University of Pennsylvania London and Philadelphia · W B Saunders Company, Ltd 1926 Pp 1174 35s

WHEN Prof Stevens had been practising and teaching first pathology and then medicine for 30 years, he wrote a book, which now appears in its second edition only four years after publication In the first edition it was obvious that Prof Stevens had supplemented his extensive and mature experience by consulting the writings of many authorities, and the lists of references in the new edition show that he has spared himself no trouble in revision New articles include those on sickle-celled anæmia, Ayerza's disease, occlusion of the coronary arteries and lipodystrophy, while the advances made in recent years in our knowledge of diabetes jaundice, and diseases of the circulatory system are reflected in the appropriate sections Certain parts of the new material call for comment. For example, the description of Dick reaction for scarlet fever (p 237) leaves some confusion between its use for testing susceptibility and its use in the diagnosis of a scarlatiniform eruption

When dealing with nephritis, Prof Stevens sets out a good modern classification based on that of Volhard and Fahr (p 814) but he almost at once abandons this scheme and treats the subject on orthodox lines with a new note on "Epstein's nephrosis"

For the most part the claim that this book is "as nearly up to date as possible" is justified Thus in tuberculosis Prof Stevens makes it clear that inherited predisposition is not so important as was formerly believed and he stresses direct contagion as the dominating factor In the section on blood diseases it is satisfactory to find set out in full Sternberg's classification of the leukæmias as modified by MacCallum In the description of cerebral vascular disease the old-fashioned clear-cut distinction between hæmorrhage and thrombosis based on blood-pressure readings is swept away with the statement "in many cases a differentiation is impossible" although the application of this point to treatment is not clearly made Tabes dorsalis is dealt with on modern lines, but the early loss of the ankle-jerk rather than the knee-jerk should be stressed There is a very good account of thrombo-angiitis obliterans Such samples of many different sections of a large volume will serve to show that it contains a mass of good material and is worthy of a place in any medical library

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Practical Physiological Chemistry

Ninth edition By Philip B Hawk, M S, Ph D, President of the Food Research Laboratories, Inc, New York City, and Olaf Bergheim, M S, Ph D, Assistant Professor of Physiological Chemistry in the University of Illinois, College of Medicine, Chicago London J and A Churchill 1926 Pp 931 28*s*

The previous issues of this work were from the pen of Prof Philip B Hawk, but this volume is under the dual authorship of Prof Hawk and Prof O Bergheim In the preface the original author pays warm tribute to Prof Bergheim for the par that he has played in the revision of the volume, and both authors are to be congratulated upon the excellence of their work The contents of the book are wide and varied, and the modern developments of the subject clearly and fully set out

In addition to bringing up to date all the original matter, seven new chapters have been added, dealing respectively with the physical chemistry of true and colloidal solutions, absorption, putrefaction and detoxication, the chemistry of the blood, respiratory metabolism and neutrality regulation, the endocrine organs and energy metabolism In the first chapter the physical chemistry of true and colloidal solutions and its application to physiological chemistry are discussed This is done in the space of 40 pages, and forms an excellent summary of the subject The section dealing with hydrogen-ion concentration is written so clearly that even the most elementary student could understand and take an interest in it In the chapter on enzymes it is instructive to see that doubt is thrown upon the value of the Abderhalden reaction The authors make their opinion quite clear by the fact that they give one reference to work in favour of Abderhalden's views, and eight references to work which contradicts his claims

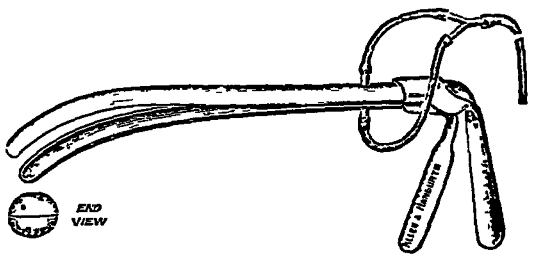
In the section on carbohydrates it is stated that "there is reason to believe that the normal organism converts ordinary glucose to the γ variety as a preliminary to oxidation, a power which is lacking in diabetics" This should have been supplemented by reference to the various criticisms of this view The chapter on the constitution of proteins is disappointing in that no account of the modern work on methods of protein analysis is included The synthesis of peptides is dismissed with a word, and no reference is given to the work of the modern German school on the diketo piperazine structure of proteins The chemistry of gastric digestion together with methods of gastric analysis, is dealt with in a most thorough and excellent manner No mention is made of the methods of preparation of the bile pigments, which are very easily obtained from gall-stones, and this is regrettable, because their preparation forms a very useful exercise for students The properties of hæmoglobin and its disintegration products are discussed rather superficially For instance, on page 339 in a schematic representation of hæmoglobin and its derivatives and how they are obtained, hæmatin does not appear in the scheme, although acid-hæmatin and alkaline-hæmatin are shown as being obtained by the action of dilute acids and alkalis respectively on oxyhæmoglobin The student might form the erroneous idea that hæmatin can be obtained by neutralising one or other of these solutions The relationship between these bodies and the classical hæmatin as described by Hoppe-Seyler and by Gamgee is not made clear In the section on blood analysis on page 371 the usual Folin method for the determination of blood-urea by distillation is given, though experienced workers know that it is impracticable owing to the excessive frothing which takes place The authors do not mention the methods of surmounting this troublesome complication The new chapter on the endocrine organs is a very up-to-date summary of this interesting subject, and is well adapted to the needs of students The remainder of the book maintains a high standard. Its only possible disadvantage for general use is its high price, but it must be remembered that the volume is a very large one, comprising nearly 1000 pages, and contains complete details for practical work on almost every branch of biochemistry

The work is one of the most comprehensive and practical to be found in any language It is well produced and such criticisms as we have made are noted only because further editions will certainly be called for

New Inventions.

UTERINE DOUCHE DILATOR

The illustration shows a new uterine douche dilator made in two halves, which, when closed, resemble an ordinary uterine douche Each half is hollow and is perforated at the distal extremity, so that fluid can pass through it and be sprayed out at the end The douche is passed into the uterus in the usual manner, and then by slight pressure on the handle it is made to open By this means the cervix is held open during the process of douching, thereby facilitating the passage out of the uterus of any foreign matter



Messrs Allen and Hanburys, of Wigmore-street, London, are the manufacturers

J E Hepper, M R C S, L R C P Lond
Brenchley

British Institute of Philosophical Studies — A meeting of this Institute is to be held on Feb 15th, at which Prof Julian Huxley and Mr Morris Ginsberg D Litt, are to speak on the Claims of Eugenics Sir William Beveridge will occupy the chair As usual a certain number of seats will be reserved for the general public and can be obtained on application to the Director of Studies at the above address

THE LANCET.

LONDON: SATURDAY, FEBRUARY 12, 1927

DOCTOR AND REGISTRAR.

AT bottom it is the practitioner who is the vital statistician. From his verdict as to the fact and cause of death there is no appeal; the rest is commentary or deduction—deduction, it is true, of a high numerical order but depending for its value on the practitioner's death certificate. The practitioner certifies both the fact and the cause of death. The former task is not yet laid upon him as a legal duty, but public feeling has been growing from year to year that the safety of the community is best served by making the medical profession responsible for the fact of death. Until the autumn of 1924 the formal certificate allowed him to insert the words "as I am informed," if he did not feel justified in taking upon himself the responsibility of certifying the fact of death. The new form, Y, requires him to state plainly that he has seen, or has not seen, the deceased since death, and in the new regulation which came into force with the present year[1] the local registrar is instructed to report to the coroner any death where the contents of the medical certificate show that the deceased was not seen after death by the certifying practitioner, and was not seen alive by him within 14 days of the date of death. To this extent and of course in every case where violence has occurred, the coroner assumes responsibility, but in regard to the cause of death the practitioner's field is now undisputed. In the seventeenth century it was customary in London to swear in ancient matrons who examined "by what disease or casualty the corpse died," making their report to the parish clerk on the Tuesday in each week. More than 80 years ago, at the instigation of WILLIAM FARR, the Royal Colleges and the Apothecaries invited practitioners generally to give in every instance an authentic name to the fatal disease under their care, preferably its popular or common name, with a statement not exceeding ten words in length; and in 1845 the Registrar-General began to supply practitioners with books of blank certificates asking them to distinguish between primary and secondary causes of death. A joint committee appointed by the College of Physicians of London came to the aid of practitioners in filling up these certificates and in 1869 issued a Nomenclature of Diseases suitable to England and to all countries where the English language is in common use with the further object of laying the foundations for a nomenclature in any language extant on earth. The former aim has been realised and the Nomenclature has appeared since at ten-yearly intervals, the current edition[2] being dated 1918, and the sixth edition being due in 1928. Their ambition to found an international nomenclature was not realised; in the early editions equivalent terms were given in Latin, French, German, and Italian, but these gradually dropped out, Italian being the first to go, and the present Nomenclature is solely in the English language. The preface expresses the hope that all medical practitioners will use the book for the return of causes of death, uniformity of terms being of the greatest importance for all statistical purposes.

Even with the aid of the R.C.P. Nomenclature the task of the certifying doctor is none too easy. The size of the 1918 edition is sufficient evidence of this; the list of diseases occupies 250 pages, and the index contains some 6300 entries. Set this against the London Bills of Mortality in 1668, when 75 headings included all possible diseases and casualties,[3] ten consecutive entries taken at random being king's evil, leprosy, lethargy, livergrown, lunatick, megrims, measles, mother, murdered, overlaid. A number of the more general terms in the present day list may seem as vague as these to a later generation, and there is certainly scope enough for choice without the use of the indefinite or undesirable terms of which the Registrar-General has drawn up a list for the guidance of practitioners. A selection from this list is given on a later page of this issue. Ten years is a long interval for revision of terminology in a live profession; terms are continually dropping out of medical use and new terms as continually gain the sanction of usage or convenience. Dr. PARKES WEBER called attention last week to some examples of this tendency and no doubt the joint committee of the Colleges will consider this and other suggestions at the forthcoming decennial revision. But even when no difficulty of nomenclature arises there are many pitfalls in the use of the partitions in the certificate. What is the primary, secondary, or terminal cause, in spite of the logical definition given on the certificate, must often remain a question of opinion. The consumptive who is attacked with influenza and ends his own life during the period of resulting depression, the diabetic woman who gives birth to a child and dies with a pulmonary embolism, are only two examples of familiar perplexities. And although the practitioner is not asked to anticipate the problems of tabulating causes of death, he is asked to bear in mind certain principles, as the inclusion under violence of all deaths from unnatural causes, including anæsthetics and poisons of all forms, the mention of childbirth wherever this has been in any way a contributory cause of death, attention to the seat of the primary lesion in cancer, and to the vaccinal state in a death from small-pox. With regard to diagnostic difficulties it cannot be too widely known that the Registrar-General welcomes information from practitioners as to causes of death not available when the certificate was issued, especially where a post-mortem examination or bacteriological investigation has thrown light on the precise cause.

The work of the Registrar-General may not be easy technically but it is simplified in this country by the fact that he does not undertake to tabulate the causes of death but simply what the practitioners say are the causes of death. It is not his business to revise a diagnosis even if he may be sure that it is wrong. To take an example some hundreds of deaths yearly are certified as being due to status lymphaticus or status thymicus, in spite of the almost conclusive demonstration by Prof. J. A. HAMMAR of Uppsala, that the criterion—namely, enlargement of the thymus—on which this diagnosis is based, is without value, but so long as practitioners certify lymphatism, the Registrar-General must tabulate in his list the deaths assigned to it. Similarly, food infections will still be entered up as ptomaine poisoning if the practitioner retains his faith in its existence. For his annual report the Registrar-General works on the primary causes of death as returned by the certifying practitioner, although the number of possible fatal diseases is so great that separate returns for each would be impossible. He therefore arranges the majority of these in groups of more or less related causes under single headings, and in the Manual,[4] which is summarised on page 359, reasons are given for the composition of these groups, of which there are at present 205 forming what is called the "Short List." The International Commission of 1920 gave its assent to the slight variants in this list rendered desirable by the particular circumstances of the British Isles, along with numerous deductions, eight headings of obvious value have been added—namely, encephalitis lethargica, meningococcal meningitis, rheumatic fever, diabetes, arterio-sclerosis, pneumonia, ulcer of the stomach and duodenum, bronchitis. The Registrar-General's next problem is to select for tabulation one out of a number of causes of death where more than one is given in the practitioner's certificate. The general order of preference has been chosen with a view of serving the interests of justice and public health. Violence takes precedence of every other cause, as the safety of the subject stands first. Epidemic disease takes precedence of local disease, in order that the risks to public health may be correctly assessed. The examples of selection given on a later page make good reading for the practitioner inasmuch as many of them are concerned with the dark corners of practice. Usage differs somewhat in English and Scottish head offices but the aim is the same in both. What exactly are the principles which should guide this precedence will be again discussed at the forthcoming revision of the International List by the Health Section of the League of Nations at Geneva, when the Section will have before it the suggestions of a British advisory committee of clinical experts, on which the College of Physicians has just appointed Dr. Robert Hutchison as its representative. Finally, the General Register Office goes over the same material again at ten-yearly intervals to show the local distribution of certain causes of death. The great image built up on the practitioner's death certificate is certainly imposing, those who throw stones can only do so with any hope of success if its feet, as in Nebuchadnezzar's dream, are partly of clay.

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[1] THE LANCET, Feb. 5th, p. 310.

[2] The Nomenclature of Diseases. Drawn up by a Joint Committee appointed by the Royal College of Physicians of London. Fifth edition, being the fourth revision. London: H.M. Stationery Office. 1918. 2s.

[3] Quoted in Statistical Handbook, No. 3, League of Nations Health Organisation. Official Vital Statistics of England and Wales: a Review of Existing Practice and Procedure prepared by Dr. M. Greenwood and Major P. C. Page. C.H. 270. London: Constable and Co. 2s. 6d.

EPIDEMIC POLIOMYELITIS

THE epidemic of "infantile paralysis" which occurred last autumn attracted more public attention than any previous outbreak of this disease. The chief reason was that the affected communities included a famous public school and the Military Academy at Woolwich, and owing to heated argument the main issues became confused out of recognition. The sober discussions promoted on Friday last by the Association of Medical Officers of Schools (p. 321 of this issue), and on Monday by the Medical Society of London (p. 340 of this issue), have done the great service of resolving much of this confusion and of collating the knowledge, not perfect but nevertheless considerable, possessed by those in this country who have given the subject their closest study. In Dr. James Collier's words, addressing the school medical officers, "the public health aspect of poliomyelitis bristles with difficulties and dangers, ignorances and paradoxes," and, so far from being disputed hotly in the daily papers, should be approached with extreme caution and in a spirit of constructive reverence exclusively by those whose experience gives them the right to undertake such a grave responsibility. The ultimate problems of the disease will be solved only by "careful clinical observation, which cannot lead us astray," and by the united efforts of general practitioners, any of whom may find out the importance of some hitherto unobserved fact.

It is practically established that the malady is communicated by human contact only, the medium of infection being the secretions from the upper respiratory membranes and the portal of entry the nasopharynx. Incidence is greatest in the late summer, and most of the victims are between two and five years of age. Incubation usually takes three or four days, but may require twelve in some patients or be complete after two in others. The infection seems to be spread almost entirely by carriers, who are generally people in whom the course of the disease has been abortive. Dr. Collier does not believe in case-to-case infection, and his experience of carriers is that their virulence is at its highest at the onset of the disease and wanes in a few days. The carrier does not often die, and the "chronic healthy" carrier of typhoid has fortunately no counterpart in poliomyelitis. Notwithstanding the events of last autumn, he holds it to be a fact that the disease does not like schools, institutions, and large towns, the reason being probably that the resistance of the population in these places is high. As Dr. F. Walshe said, in opening the discussion on poliomyelitis before the Medical Society of London, "either most infants suffer from an abortive form of the disease in early life and thus acquire permanent immunity, or there is a particular and limited class of persons whose healthy nasopharyngeal secretions lack the necessary protective bodies," but whichever speculation be true, poliomyelitis certainly will not vegetate like measles, small-pox, and varicella, on every soil. The community that has most to fear from it is the small, comparatively isolated group, which has never been "salted." Dr. Collier contrasts two types of epidemic, one in an "unsalted" West country village, where 45 people out of 119 contracted poliomyelitis within a few days of the arrival of a carrier, and the other in Edinburgh, a highly salted community with multitudinous carriers. The latter epidemic was limited to 62 cases of the usual spinal type. Contact was absolutely excluded in all but three patients, and only six suffered from headache. Both the authorities we have quoted agree on the importance (to any study of the epidemiology of poliomyelitis) of the work of W. W. Topley and Major Greenwood on animal communities and of Surg.-Comdr. S. F. Dudley on certain semi-isolated human communities. Topley and Greenwood found that the spread of an infection in an isolated community of mice was limited by dividing the herd into small groups and segregating them from one another. This soon got rid of the infection, but if fresh susceptibles were admitted to the herd the virulence was increased. Even when an epidemic seemed to have died down the new susceptibles acted as fresh fuel resuscitating it so that in the end even the immunised members succumbed It is much safer, in fact to introduce a thousand susceptibles to an infected community all on the same day than 10 a day for 100 days Comdr Dudley remarked that the morbidity from infections was four times greater in Greenwich Naval School than in the London elementary schools, yet the boys in the naval school are the pick of the board schools The reason for this, he says is that droplet infections are spread essentially in the dormitory not in the playground or class-room the rate of spread varies inversely as the distance between individuals In a mixed boarding- and day-school it is the boarders who suffer

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[4] Manual of the International List of Causes of Death as Adapted for Use in England and Wales, Scotland, and Northern Ireland. Based on the third decennial revision by the International Commission, Paris, 1920. H.M. Stationery Office. 1926. 2s.

The autumn outbreaks excited a vigorous controversy between those who held that a boarding-school attacked by poliomyelitis should be enclosed and quarantined and those who advocated dispersal the embarrassing feature of the dispute being the assumption by either side that one policy only could be right and that the other must necessarily be wrong It must, however, be remembered that this position was inevitable, for advice had to be given promptly in an emergency, the two policies could not run concurrently, the advisers could not give counsel which would cover two diverging procedures Dr Walshe sums the question up very fairly by suggesting that to take the view that the correctness of one course is the condemnation of the other in our present very incomplete state of knowledge, ' is to place a very complex situation upon the Procrustean bed of an unjustified generalisation There are obvious objections to either policy, and it may be doubted whether either has a universal validity " Assuming that a headmaster will, as it is only reasonable to expect, consider the safety of his pupils first and the community at large second, then the choice between isolation and dispersal must, Dr Walshe says depend entirely upon the local conditions The latest research work shows that the measures for stamping out infection in a boarding-school must include the segregation of the pupils into small groups of which each must be isolated from every other group, the spacing of beds at such a distance that infection by droplets is impossible, and the exclusion of fresh susceptibles until a long time after the epidemic has died out If local conditions do not permit these steps to be taken and rigorously enforced —and the number of schools in which they are practicable may be small—then the policy of isolation and quarantine is not justifiable on its merits The possible consequences of the disease include severe and permanent disablement, and each fresh case increases the period of isolation and the chances of contact infection The objections to the opposite policy of dispersal are also very great. for it is known that the disease is spread perhaps entirely, by carriers, and the probability of some of the released contacts infecting the district in which they live is a formidable one The risk will increase inversely as the effectiveness of the segregation measures taken by the parents at home We must agree with Dr Walshe that although closure is the method of choice when it can be properly carried out under ideal conditions these conditions are not always present Where the responsibility is assumed of breaking up a school every possible step must be taken to enlist the coöperation of the parents in the interests of the public safety As a matter of fact the schools show great tendency to break themselves up for no pupil unless he can be regarded medically as unfit to travel either on his own account or on public grounds can be detained in defiance of parental instructions

ATMOSPHERIC POLLUTION· A YEAR'S RECORD

The Advisory Committee on Atmospheric Pollution has just published its twelfth annual report[1] covering the year ended March 31st 1926 The first section summarises the returns from 29 authorities having 61 deposit gauges and shows the monthly deposit divided into rainfall insoluble and soluble matter The insoluble matter is further subdivided into tar, carbonaceous matter other than tar, and ash. the soluble matter into loss on ignition and ash Further partial analysis of the soluble part is made into sulphates, chlorine and ammonia The highest tar deposit was found at Burnley: the lowest at Bournville, Southport (Hesketh Park), and Leeds (Headingley) The highest deposit of carbonaceous matter (soot) was at Newcastle-on-Tyne (City Road). the lowest at Rothamsted The highest deposit of sulphates was at Wakefield, the lowest at Leeds (Headingley) In most of the stations there was a slight reduction in the amount of impurity deposited when compared with the average of the previous five years the total deposit in 36 stations being below the average in 24 and above it in 12 The deposit of tar was higher in the winter than the summer at 28 of 45 stations The insoluble ash, with which would naturally be included wind-blown dust, was higher in the summer than the winter at 32 of 46 stations The winter deposit of chlorine was higher in 41 of 45 stations a fact probably connected with the stormy weather in winter which raises spray from the surface of the sea The automatic recorders installed at Blackburn and Stoke-on-Trent show that these cities differ from other cities in the distribution of their atmospheric impurities, in the latter case the curiously irregular curves are doubtless due to the periodic emission of smoke from the pottery ovens An attempt has been made to bring out a weekly time-table of the smoke-haze in certain localities; in Westminster there is a falling-off after Thursday, at South Kensington the haze is scattered fairly evenly over the week while at Kew the maximum is towards the end of the week Dust counter observations are dealt with in the third section of the report where the method of obtaining samples of the soluble crystalline matter in the dust is illustrated, with reference to Dr J S Owens's demonstration before the Royal Society of the bearing of deliquescence of microscopic crystals on fog formation The United States Weather Bureau has recently confirmed the relation between visibility, relative humidity, and the number of dust particles as estimated by the Owens dust counter Illustrations are given of the curious spherical dust particles derived from furnace ash The fourth section of the report also deals with the obstruction of ultra-violet radiation by smoke and with the quantity of smoke impurity in the air the conclusion is reached that there is a distinct relation between the amount of radiation received on the ground as measured by Dr Leonard Hill's methylene-blue method and the amount of smoke pollution The observed relation of sulphur deposit to total deposit is interesting, when the total deposit is small the percentage of sulphur is high and vice versa For example. Leeds (Headingley) with a total deposit of 1531 metric tons per hundred square kilometres in the year shows a sulphur percentage of 23 6 while Newcastle-on-Tyne with a deposit of 21 580 for the same period shows a sulphur percentage of 7 1 An attempt to measure the deposit hour by hour is described by Dr J R ASHWORTH in an appendix

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[1] Meteorological Office Air Ministry M O 290 H M Stationery Office 1926 6s 6d

The valuable work of the Advisory Committee is to continue, although it is not yet quite certain under what conditions We understand, however, that it has now been arranged for the work to be carried on under the Department of Scientific and Industrial Research, the new regime being established from April 1st next This should be a step in the right direction as it will bring into close relationship the work of the Committee with that of the Fuel Research Board The Committee has aimed simply at measuring the impurities in the air and collecting data on the degree and nature of pollution, whereas the investigation of methods of preventing smoke is a legitimate function of the Board During the last year there has been a definite increase in interest taken by the general public in the purification of the air, partly due, no doubt, to the growing conviction, now a matter of public knowledge, that sunshine, and more particularly ultra-violet radiation from the sun, are essential to health It is true that there are still many persons who do not wish to have industrial processes interfered with, however much they affect the health of others There is, however, before Parliament a Bill which aims at the reduction of the smoke nuisance What result will follow its enforcement it is hard to say, for as the domestic fire is not to be included in its purview we cannot hope for any reduction in domestic smoke as a direct result Indirect advantage may nevertheless arise from the encouragement to develop smokeless solid fuels such as low-temperature coke, or to improve the quality of ordinary high-temperature coke so as to make it a more satisfactory fuel for domestic use On the whole the prospect is brighter year by year as more people come to realise that all is not well when they are compelled to live in a soot-laden atmosphere

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Annotations.

"Ne quid nimis"

PHYSICAL EDUCATION OF THE ADOLESCENT.

THE Report of the Consultative Committee of the Board of Education on the Education of the Adolescent[1] raises issues affecting not only the educational system, but also the general social and industrial organisation of the country The conclusion is reached, from a study of the history of the development of our elementary system of education and of its present features, that all children should be transferred at the age of 11 or 12 years from the "primary" school to schools of the present "secondary" or "central" types Both of these "post-primary" schools should give a humane and general education, but the former is designed as a stepping-stone to higher education, and the latter is to be related more closely to the living texture of industrial or commercial or rural life In other words, "post-primary" education should be adapted to foster such inherent capacities as may be possessed by the individual scholar In this wide survey physical training has not been omitted, but has scarcely received the scrutiny it deserves The Committee's conclusion that every modern school should have a playing field of its own, especially in large towns, and that in crowded areas, a play field should be provided for a group of several schools in a district, each having the right to the use of the ground on stated days, or at stated times, will be welcomed

But many will hardly agree with the statement that "Most games and sports, while contributing largely towards general health and fitness, tend to produce a rather ill-balanced development of the body and require to be supplemented by systematic physical exercises" Does any outdoor game tend to produce ill-balanced development that really requires corrective physical exercises? The relative merits of systematic exercises and group games have not been discussed and no indication has been given as to the type of instruction, nor as to the time that should be devoted to physical education, although reference is made to the Syllabus of Physical Training for Schools, 1919, issued by the Board of Education The Board intends shortly to publish a reference book of gymnastic training for boys' schools, other than elementary, which provides for continuously progressive training up to the age of 18 and a somewhat similar book for girls up to the age of 16, and probably it is for this reason that few details are given now But we feel that an opportunity has been missed by the Committee in their failure to show clearly the need for a uniform and comprehensive system of training In the "primary" schools, where the children have not yet progressed to the group game level, a graded system of exercises passing gradually into simple games and athletic activities is necessary and should be an integral part of the curriculum The way will thus be prepared for the advance of the adolescent, in whom the communal game instinct is fairly well established Provision must be made for a sufficiency of fully trained teachers to undertake the direction and supervision of physical training as a whole, and sufficient time should be allocated in the curriculum for such training, there must be suitable facilities and equipment for games and play, since both guidance and adequate playing opportunities are required to encourage and develop the self-reliance and restraint, loyalty and resourcefulness necessary for team-work

ENDEMIC GOITRE IN THE UNITED STATES

IT has long been hoped that the collection of exact information as to the distribution of endemic goitre in different parts of the world would aid in the determination of the cause or causes of enlargement of the thyroid gland Diligent search has been made for the special conditions which obtain in districts where goitre has been found to be prevalent Geological formation, fæcal contamination of the drinking water, and scarcity of iodine in the food and drink in the affected area have, each in turn, been held to be largely responsible for the occurrence of the malady A satisfactory solution of the problem, however, is still wanting Goitre is very prevalent in some of the United States, and in a recent report on the distribution of endemic goitre, published by Dr Robert Olesen[1] of the United States Public Health Service, the known facts with regard to its distribution have been brought together Much valuable information as to the frequency of the disease in men of military age was obtained from the records of the draft examinations during the war, although, as goitre is more frequent in women than in men the numbers obtained are smaller than those which would be got from a survey of all the inhabitants of each State The total number of men examined was 2 510,701, and the figures show a wide variation in different States To take a few examples the ratio per 1000 in Idaho was 26 91, in Oregon 26 31 in Illinois 7 79, in New York 1 19 in Maine 0 66 and in Florida 0 25 Generally speaking, the figures thus collected indicated a greater frequency of goitre in the Great Lakes Basin Pacific North-West and in the than elsewhere The results of a number of surveys made in different parts of the United States largely agree with those obtained by the examination of the drafted men. But these surveys are of relative value only, owing to the different views held as to what really constitutes a goitre. It is most important that a uniform method of examination and record should be adopted in all districts. and indeed in all countries and that some degree of abnormality should be decided on as a standard In America some resurveys have been made and with due precautions these should yield information of value in determining any change in the incidence of goitre which may have occurred as a result of the adoption of prophylactic measures in any given area If possible they should be made under the same supervisor, so that the personal factor remains constant

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[1] H M Stationery Office Pp 300 2s

[1] Public Health Reports Distribution of Endemic Goitre in the United States as shown by Thyroid Surveys vol xli No 48.

So variable have been the reports from different places, that it remains difficult. for example. to decide whether the general administration of iodine to school-children in goitrous areas is desirable. In the Central States as in other parts of the world: this measure is said to give good results and it can hardly be thought unreasonable where its aim is merely to raise the intake of iodine to a normal level The results however, are conflicting and in any case it is unwise in this country to encourage the wholesale use of iodised preparations some of which certainly contain far more of the drug than the body normally requires In the wise words of Dr. Donald Guthrie,[2] of Pennsylvania, "the public should be warned of the great danger in the self-administration of iodine for the treatment of goitre and physicians should have a clear understanding of the types of goitre that are amenable to the iodine treatment and of the danger which attends its incorrect use" Instead of this we see articles in the lay press and notices in chemists shops instructing people to regard iodine as a general tonic and especially as a preventive or cure for goitre

ACTION OF PHENOL ON PROTEINS

POISONING by drinking phenolic disinfectants still occurs with sufficient frequency to render any study of the action of such bodies on the constituents of the animal of interest to the medical profession. In the current number of the *Journal of Physical Chemistry* E Ashley Cooper and E Sanders[3] describe work on the relations of phenol to proteins and other colloids Cooper and Woodhouse in 1923 had found that the uptake of phenol from aqueous solutions by proteins in its first stage followed the partition law—that is there was a consistent ratio between the concentration of phenol in the aqueous solution and the protein As the concentration of phenol was increased, the protein began to absorb greater (up to 12 times) proportions of phenol and to separate from solution. The present work has been carried out on the proteins of serum, on the muscle proteins myosinogen, and paramyosinogen, on the vegetable proteins edestin and gliadin, on gelatin treated in various ways, and on such inorganic colloids as ferric hydroxide hydrosol and silicic acid as well as on soap The authors point out that there is great similarity between the action of phenol, of alcohol and of heat; they remark that those bacteria which are most susceptible to the disinfection by alcohol and phenol are also most susceptible to the action of hot water. the action in all cases being apparently due to de-emulsification of the protein. Heat coagulation of proteins like that produced by phenol is known to occur in two stages—first denaturation then agglutination It appears that the second of these stages is associated with the greatly increased solvent power of the protein for phenol, denaturation having no effect on the partition of phenol between water and protein The increased absorption the authors are inclined to attribute to association of molecules of phenol This view is somewhat supported by the relative behaviour of phenol and the less toxic dihydric phenol resorcinol which although it coagulates gelatin is. unlike phenol not then absorbed by it to any great extent Phenol forms associated molecules in some solvents—e.g. benzol—whereas resorcinol does not. The inorganic colloids had no absorptive power for phenol but soap, although not coagulated, showed two stages of absorption The denaturation of albumin by various means including electrolysis, has recently been studied by H Mastin and C B. Schryver,[4] who find that a well-defined acidic product is formed containing an increased number of acid groups, but not of basic groups. and bring forward evidence for a new type of linkage of carbon and sulphur in proteins The former work was done at the University of Birmingham the latter in connexion with the work of the Adhesives Committee of the Department of Scientific and Industrial Research Both researches have an important bearing on those irreversible changes induced by phenols or by electric shock. which are associated with death

CANCER IN THE FIELD

THE ætiology of cancer can be approached in many ways At one end of the scale we have Dr W E Gye's intensive investigations in the laboratory, at the other end Dr L W Sambon s expeditions in search of significant relations between incidence and environment. The general idea behind Dr. Sambon's work evidently is that cancer is caused by a parasite. or by something like a parasite, and that this agent comes from. or has some relation to some animal or plant Observations along these lines appear in the third report of the Cancer Field Commission[5] which works under his direction. with the support of the Tropical Disease Prevention Association and with financial aid from the British Empire Cancer Campaign. This report describes researches on the epidemiology of cancer made during 1925 in Italy and Holland and deals incidentally with so extraordinary a diversity of topics that it is possible to summarise only a few of them. Cancer distribution and cancer prevalence says Dr. Sambon, vary from place to place, irrespective of climate. race food. type of dwelling, habits and customs. As a rule cases of cancer are distributed in groups or clusters; a first case is usually followed by one. two three, or more cases, either in the same house or in adjoining or neighbouring houses Frequently in a cancer cluster the patients are affected in the same organ which suggests a common source of infection. The evidence in favour of these statements consists of maps and case-lists vouched for by local physicians and by civil and ecclesiastical authorities but the propositions are so fundamental that they can hardly be accepted without more information than Dr Sambon offers: the questions which they would answer are among the most difficult in statistical epidemiology Following the assumption that cancer is indeed a disease of places Dr. Sambon naturally proceeded to investigate the fauna and flora of implicated localities. Considerable attention was paid to worms for. like many others he interprets Fibiger s production of cancer by irritating rats stomachs with the worm *Gongylonema neoplasticum* as evidence that the worm either carries a parasite which causes cancer or sets up a condition which favours the entrance of such a parasite. A number of interesting observations were made of the occurrence of species of *Gongylonema* in men pigs cattle. and rats and in their intermediate hosts (cockroaches and beetles) and Dr. C Bonne describes in detail a wild rat caught in Italy which had an epithelial tumour of the cardiac end of the stomach associated with the worm *Hepaticola gastrica*—a coincidence which has been seen three times before The known examples of worm-infection preceding cancer in men and animals are reviewed and Dr Sambon rightly points out that, whatever the details of the association may be, it is no doubt possible to control the prevalence of worms by hygienic methods and so, to a greater or less degree control the prevalence of cancer. Tumours in plants (crown-gall, ordinary galls, &c) are also noticed with the idea that animal cancers may have the same origin. In all that relates to worms, the Commission has had the expert help of Dr H A Baylis. Mr J Ramsbottom similarly contributes notes on the fungi found in cancer-houses and on other matters which fall within his province. Entomology is dealt with by Mr K G Blair, who investigated the insect hosts of *Gongylonema*, and the fauna of suspected houses and drinking fountains. Finally, Sir Lenthal Cheatle gives some histological notes on the tumours which were obtained. All these writers have something of interest to contribute, how far their facts really have to do with cancer time alone will show. It may turn out, after all, that cancer is due to an extraneous virus, and Dr Sambon may be following a fruitful line in examining all the avenues by which this virus may be implanted in the body. In any case the Field Commission is pursuing a refreshingly independent course, in attempting to solve problems which ramify so widely.

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[2] Therapeutic Gazette, Dec 15th 1926
[3] Jour Phys Chem, 1927, xxxi, 1
[4] Biochem. Jour 1926 xx 1177
[5] Journal of Tropical Medicine and Hygiene August 16th, 1926

CARCINOMA OF THE SMALL INTESTINE

Dr Edmund M Clark, of Indianapolis, who reports a case of colloid carcinoma of the ileum,[1] quotes some interesting statistics to illustrate the rarity of carcinoma of the small intestine. Of 466 cases of intestinal cancer found at the Vienna Pathological Institute during the period 1870-93 only 25 were located in the small intestine, 13 being in the duodenum and 12 in the ileum. A review of the recorded cases shows that primary carcinoma is commoner in the duodenum than in the jejunum or ileum, and that the jejunum is least often the site of malignant growths. According to Ewing tumours of the small intestine occur in three distinct forms (1) As part of a general or local polyposis (2) As multiple or single embryonal carcinoid tumours which are usually found in the ileum or jejunum as single or multiple firm opaque nodules in the mucosa or submucosa, differing in structure according as they arise from pancreatic island tissue, heterotopic intestinal mucosa, or glands (3) As localised adenocarcinomata arising from single intestinal polypi. Most intestinal carcinomata are of the last type. The average age of patients with carcinoma of the small intestine is 46½ years, though a case has been reported in a child aged 3½ years. About 70 per cent of all cases of carcinoma of the duodenum are localised in the ampulla. In the jejunum and ileum carcinoma occurs either as a degenerative polyp or as a ring cancer like that seen in the large intestine. The symptoms at first are indefinite, being loss of weight, asthenia, and vague abdominal discomfort. In the cases reported in the literature an early diagnosis was not made. In the later stage signs of intestinal obstruction develop. The symptoms of the greatest diagnostic value are stubborn constipation—with or without alternating diarrhœa—severe attacks of colicky pain, and vomiting. With the increasing obstruction visible peristalsis and a palpable tumour may be found. Gross blood is rarely present in the stools, but occult blood may be detected and is a useful guide to diagnosis. Radiography is also of great assistance and serves to localise the lesion, as was shown in Dr Clark's case, with fair accuracy. The prognosis is gloomy, but is most favourable when the growth is situated in the jejunum. Treatment is, of course, surgical lateral anastomosis being required if removal of the tumour is impossible. In Dr Clark's case, which occurred in a man aged 59, the pre-operative diagnosis was intestinal obstruction. The patient had suffered from indigestion for many years but there was a definite increase in the intensity of the gastric symptoms about six months before the onset of intestinal obstruction. At operation the tumour was found in the ileum about 12 inches from the ileocæcal valve. About 8 inches of bowel were resected and a side-to-side anastomosis was made. Recovery was uneventful.' The growth proved to be a colloid carcinoma which is the rarest type of carcinoma found in the small intestine. In connexion with obstruction in the small intestine it should not be forgotten that a nodular constriction of the gut may possibly be secondary to cancer of some other organ as was illustrated by a case recently published by Mr Alan Perry in THE LANCET (Jan 29th, p 226). A second case was described by Mr Perry in which a ring-like stricture of the jejunum proved to be syphilitic.

HYPNOTISM AND ANÆSTHESIA

THE relationship between hypnosis and anæsthesia is a close one, whether viewed historically or from the point of view of the physiologist. Historically it may be recalled that the use of hypnotism for allowing painless performance of surgical operations was at its height shortly before the introduction of nitrous oxide, ether, and chloroform. And it is probable that the work of Esdaile on hypnosis would have been followed and extended by other surgeons had it not been for the advent of these far better aids to surgery, the general anæsthetics. The physiological relationship of the two states, hypnosis and anæsthesia, was explained by Dr S R Wilson in the paper he read before the Section of Anæsthetics at the Royal Society of Medicine on Feb 4th. Both of the states mentioned depend on inhibition of the volitional cortical layer of cells and consequent freedom of the lower layers. Dr Wilson expounded the modern view of reflex action as founded by the work of Sherrington and of Pavlov, and showed how these views provide a sane and scientific hypothesis for the explanation of the phenomena of hypnosis and suggestion, which are now, of course, completely removed in the minds of the instructed, from that suspicion of delusion or "thought-reading" or "spiritualism" with which they were formerly wont to be regarded. Dr Wilson further showed how justly and with what great advantage suggestion may be employed for the patient's benefit if it is introduced by the anæsthetist at the correct stage of early narcosis—viz, at that time, when, although volition is abolished, senses and reflexes are active and impressionable, and memory can be firmly stamped. Dr Wilson illustrated his theories by one or two simple, striking, and completely successful demonstrations.

FOCAL NEPHRITIS

IN the investigation of the diseases of any organ it frequently happens that one of the first results is the separation of some group of cases which can be given a satisfactory pathology and which form a starting-point for fresh classification. This has been well illustrated in the recent separation of coronary thrombosis from the heterogeneous mass of clinical and pathological material grouped under the heading of angina pectoris. And now acute inflammation of the kidney is being gradually classified into several subdivisions, and focal or embolic nephritis is one of the first of these smaller groups to be described. This form of acute nephritis occurs practically only in the course of infective endocarditis, and is a condition of multiple infarction of the kidney by emboli of infected material derived from the cardiac valves. Another group of cases of acute nephritis has been separated off within recent years under the heading of acute hæmorrhagic nephritis, described, as it occurred in 22 children, by W G Wyllie and A Moncrieff in these columns.[1] Since this account numerous cases of the condition have been reported under the title of acute hæmorrhagic nephritis and a recent paper by W S C Copeman contains the records of four typical examples.[2] It is important to remember, however, that this form of acute nephritis is closely allied to embolic nephritis in its pathogenesis. According to the description given by Wyllie and

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[1] Surgery, Gynecology, and Obstetrics, December, 1926

[1] THE LANCET 1926 i, 128

[2] West London Med Jour 1926, xxxi, 225

Moncrieff, in acute hæmorrhagic nephritis "blood appears in the urine quite suddenly, sometimes during, but usually a few days after some acute or subacute infection of the nasopharyngeal region, and may continue to be passed in smaller quantities for several days or weeks" Thus, these authors thought, was due to "multiple emboli of streptococcal origin without any widespread inflammation of the kidney substance" As a matter of fact this condition had already been separated from acute nephritis by Volhard and Fahr, who offered the same explanation, and a good account of it is given in Dr Herman Elwyn's recent work on nephritis under the heading of 'non-embolic focal glomerulo-nephritis" Dr Elwyn is a New York physician, and his description of the condition is very similar to the account of it as it occurred in the 22 children referred to above, and he emphasises the importance of eliminating all possible sources of infection in cases of recurring focal nephritis He thinks that this form is perhaps "the most common form of nephritis," and it would seem better, in view of the increasing difficulty in securing uniformity in the classification of diseases of the kidney to classify acute nephritis as diffuse or focal, and to divide the latter group into embolic and non-embolic, limiting the term embolism to the gross infarction occurring in infective endocarditis The term acute hæmorrhagic nephritis is thus avoided, which is probably advisable, since it may rightly be pointed out that all acute nephritis is hæmorrhagic, and the name does not give the clue to the essential features of the disease as the term "focal" certainly does.

DR. LEONARD HILL'S PICTURES.

AN exhibition open until Feb 25th, at the Alpine Club, Savile Row, of paintings by Dr. Leonard Hill will repay a visit; it shows that Dr Hill has definitely joined the small band of medical men, like Prof. Tonks and the late Sir Francis Seymour Haden for example, who have found in a medical training a sound introduction to artistic performance Of Leonard Hill of the National Institute of Medical Research his colleagues know a great deal, and some of them are also aware that he has practised painting as a recreation for many years, and has previously exhibited some of his work But no so large and varied a collection of his paintings has, we think, yet invited public attention There are upwards of 120 works in the Alpine Club Gallery, composed of a few pastels, and 36 water colours, the rest being in oil While the works, whatever the medium, vary from elaborate pictures to what may be regarded as interesting notes in colour, whether they be large or small, and whether solid or elegant, they have in common the properties of luminous colour and high regard for spatial perspective Large, almost architectural, skies are made to reach over the landscape and to recede from the eye, and even in many of the smallest pictures the effect of a considerable range of scene is obtained by scrupulous regard for values And it is only here that Dr Hill has any scruples—i e, allows any discipline to control his work, for most of it has the unrestrained vigour born of that convinced intention and prompt execution which cannot be tied by regulation Many of the effects are obtained by an easy mastery of water or oil that is hardly expected from a painter who has gone through no intensive training at the student age For examples of these qualities the following pictures may be instanced First, in oil we should notice "The Harvest Field" (4) "The Poultry Yard in Snow" (2)—all kinds of poultry and especially turkeys have a great fascination for Dr Hill—"A Summer Pasture" (21), "The Hen Run" (22)—a delightful little scene "A Pastoral" (51), and "A Sandy Shore" (69), while the pictures numbered 33, 35 and 37 are good examples of the painter's objective and technique It is probable that among the water-colours more popular favour will be obtained, but there is no concession made here by Dr Hill to those who want merely pretty things The water colours are as strong and as sincere as the oils and several of them have high emotional value "Light on Cloud and Sea" (4), is a quiet and mysteriously luminous picture; "Sunrise Colours the Shore" (5), is gorgeous and happy: "The Rainbow over the Sea" (26), and the "Swede Heap" (27)—pictures at the extreme ends of Dr Hill's range of work—show his familiarity with atmospheric effects, and four Alpine Studies render faithfully the peculiar brilliancy of the snow scenes Dr Hill is to be congratulated upon his exhibition

STANDARDISATION OF ULTRA-VIOLET RADIATION

A CHEMICAL method for the standardisation of ultra-violet light is described in detail by J E Moss and A. W Knapp in the *British Journal of Actinotherapy* for January. It is to be known as the Uroxameter method, the name being apparently coined from two of the substances forming the chemical solution acted upon by the rays This solution consists of 20 c cm of a 2 per cent solution of oxalic acid, 5 c cm of a 1 per cent solution of uranium acetate, and 20 c cm of distilled water It is put in a circular flat-bottomed vessel which is 16 cm in diameter, and has vertical glass walls, 8 c cm high, and these walls are painted on the outside with one coat of red paint and three coats of white, so that the interior of the vessel appears red and the passage of light through the sides is prevented, while the white paint serves to reflect heat from the outside On top of the cell can be fixed a gas-tight lid of fused transparent silica The vessel containing the solution is placed 6½ inches below the centre of the lamp to be tested, and is rotated by means of a table at 5–6 revolutions per minute. Part of the test solution is titrated with a decinormal solution of potassium permanganate, in order to find the amount of oxalic acid which it contains Of the remainder, 45 c cm is then exposed to the light for 30 minutes and afterwards again titrated The percentage of oxalic acid which has been decomposed can then be ascertained, and this is proportional to the amount of radiation absorbed A large number of estimations have been made by this method to determine such diverse values as the variation in radiating power of mercury lamps, the colour-destroying power of the radiations, and the transparency of various glasses From spectrometer determinations it is clear that this solution strongly absorbs radiations shorter than 3200 A°V, and is therefore an appropriate medium where effects are due to rays in this region of the spectrum. The tests suggest that the method can be relied on for quantitative purposes, and we can well imagine that it would probably prove economical and suitable for industrial work It is not one, however which is likely to be adaptable to medical requirements Here as in the field of X rays, the first essential of any device for measurement, either of the intensity or of the total dose of radiation, is that it should be easy to use it at the same time as when the rays are actually being employed in treatment

THE FUTURE OF THE FOUNDLING HOSPITAL ESTATE.

THE signatures of a complete list of the medical men and women residing on the Foundling Hospital estate are appended to the following letter which has been addressed by them to Mr Neville Chamberlain, the Minister of Health.—

We, the undersigned medical men and women residing on the Foundling Hospital Estate, view with grave concern the growing tendency to build over the open spaces in the centre of London Endsleigh Gardens and Mornington Crescent have already been sold for building purposes and a Bill is to be introduced in Parliament in the ensuing session, with the object of obtaining power to erect a market on the grounds of the Foundling Hospital and the adjoining squares This site is largely surrounded by thickly populated areas and in its immediate vicinity are no less than seven important hospitals. Any diminution of the open spaces in this neighbourhood is bound to have an adverse effect on the health of the community

Open spaces, by acting as natural ventilators of the surrounding streets, diminish the incidence of infectious disease In London they have undoubtedly exercised a considerable influence in producing a low death-rate and a general high standard of health In this connexion it is worthy of note that the children of Foundling Hospital have been, over many years, extraordinarily free from tuberculosis, no definite case having occurred during the past decade

We would respectfully urge your consideration of the matter, and venture to suggest that the permanent preservation of the squares of the Foundling Hospital Estate would be a measure in the best interests of public health, and one which we earnestly hope may receive the sympathetic consideration of the Government

The letter is signed by —

C T Bishop, M B , J Christie-Anderson, M B Ch B , L D S , D Constantin, M R C S , L R C P , M Dia, M B , B S , D P H , Wm M Fairlie, M D , D P H , James Harold, L R C P I and S I , A O'Dwyer Kennedy, B A , M R C S , D A D Kennedy, M C , M B , Ch B , James Kerr, M A , M D , D P H , Edward Knight, M R C S , W B Knobel, M D , M R C P , Wm Macleod, M B , E Miller, M A., M R C S , D P H , C J O'Brien, M B , J J O'Donnell, L R C P I , Olive Rendel, M D , M R C P Maude M Richards, M B , B S , J V Rees Roberts, M D , D Sc , Eleanor C Thistlethwaite M B , Ch B , A F Whyte, M B , Ch B , G C Nelson Younger, M R C S

We trust that the views of these representative signatories will receive close attention before the future of the Foundling Hospital estate is definitely settled The value of preserving all possible open spaces in the more densely populated regions of the metropolis requires no argument, while other factors might have been introduced into a petition for the favourable notice of the Minister of Health The architectural features of the building are a heritage from the eighteenth century which should not lightly be dissipated, while this particular area of London has been lately regaining its residential character, and for many years has been meeting the needs of large and important sections of society whose interests are as worth considering from the public point of view as any commercial amenities We can conceive that with the gradual reconstruction of some of the larger houses into flats, alongside with the preservation of the beautiful gardens of the Foundling Hospital, a residential quarter already planned in bulk might develop into a real source of benefit as well as æsthetic delight

Mr. Neville Chamberlain, Minister of Health, has promised to unveil a memorial tablet to the late Sir Patrick Manson in the Manson Ward of the Royal Albert Docks Hospital, where he laid the foundations of the teaching of tropical medicine in this country, and where he carried on much of his research The ceremony will take place on Tuesday, March 15th, at 3 30 P M , and a train which leaves Fenchurch-street Station at 2 20 and arrives at Connaught-road at 2 41 P M will be found convenient It is announced that Messrs Cassell and Co will publish "The Life and Work of Sir Patrick Manson" on March 10th.

Messrs Martin Hopkinson and Co , announce the publication of a volume entitled "Medical Views on Birth Control" Edited by The Rev Sir James Marchant, it contains an introduction by Sir Thomas Horder and contributions from Dr H Crichton-Miller, Dr Leonard Hill, F R S , Dame Mary Scharlieb, Dr A E Giles, Dr R C Buist, Dr Letitia Fairfield, Sir Arthur Newsholme and Sir John Robertson

SCIENTIFIC CINEMATOGRAPHY —The Confédération Internationale des Etudiants has founded a Scientific Cinematograph Commission, consisting of representatives from student organisations in all countries, for the purpose of preparing an international catalogue of scientific films To awaken interest in this country in scientific cinematography the National Union of Students of England and Wales has organised an exhibition of scientific films at its third annual congress to be held at Bristol from March 24th to April 1st There will be a special exhibition of medical films, probably showing radiography and trepanning Full particulars may be had from the Congress Secretary, the National Union of Students, 3, Endsleigh-street, London, W C 1

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCX —TREATMENT OF ACUTE RETROPHARYNGEAL ABSCESS

THIS article will be restricted to a consideration of the acute form of abscess which occurs behind the pharynx, most commonly in children under 3 years of age No attempt will be made to discuss the rarer variety of retropharyngeal abscess, where the disease originates in the cervical vertebræ and remains behind the prevertebral layer of the deep cervical fascia This latter form of the disease is to be recognised by the greater chronicity of its symptoms, and by signs which point to a lesion in the vertebral column It is important to realise that the chronic abscess (usually tuberculous) is best approached by an incision in the neck, and in this respect differs from the acute and commoner form

Ætiology.

Acute retropharyngeal abscess arises either by direct spread backwards from an inflamed tonsil or by involvement of a group of lymph glands secondary to a tonsillar or postnasal infection These lymph glands are said to be present behind the pharynx in children, but to disappear in later life Acute retropharyngeal abscess constitutes a surgical emergency and may demand immediate operation to save life. Its diagnosis is more often missed than that of any of the dangerous conditions commonly encountered in the surgery of children, not excepting acute intussusception The patient is most commonly a pale debilitated child who may or may not be suffering from obvious dyspnœa The mother will probably say that for two or three weeks she has noticed that he has gone off his feed, dribbled a lot, or even regurgitated food which she thought he had swallowed. She will usually describe unwillingness to take food and does not realise that her baby either cannot swallow or else has experienced such pain and respiratory distress on attempting to do so that he has given up trying Dysphagia is only sometimes present, but dyspnœa in invariable Most mothers regard food as more important than air and hence the respiratory symptoms are quite unjustly often given second place The child "snores" (snoring is not common in babies), "goes black in the face when he cries," or "makes a rattling noise when he breathes" Sometimes a swelling of the neck will have been noticed, but the most common maternal diagnosis is "croup"

In any case if there is nothing pathognomonic in the picture, there should be enough to suggest that the child is suffering from an obstructive dyspnœa. If students were taught always to think of retropharyngeal abscess, and always to feel for it, in every case of obstructive dyspnœa, it would be less often passed over as "glands" or sent to fever hospitals as "laryngeal diphtheria" The finger is the final test Until the examiner has palpated the posterior pharyngeal wall, and thus incurred the noisy wrath of the infant and the silent reproach of the parent, he cannot exclude a retropharyngeal abscess The index-finger passed backward through the arch of the fauces of a normal child comes upon the bodies of the cervical vertebræ covered by prevertebral fascia and pharyngeal mucous membrane Upwards and downwards as far as the finger can reach there is a sensation of smooth hardness, much as is to be felt along the subcutaneous surface of the tibia If an abscess is present it may be seen with the aid of a tongue depressor, but the finger is the more reliable guide because the abscess may be too low to be visible Instead of uniform hardness a boggy swelling is felt on one side of the mid-line immediately behind the posterior pillar of the fauces Its size varies from that of a hazel nut to a bantam's egg, and its consistency suggests an over-ripe plum The finger in the baby's pharynx is of equal importance to the finger in the adult s rectum, and often gives more information It only remains to be added that large abscesses may be ruptured in this way unless the greatest care and gentleness are used The treatment may be considered under three heads · (1) immediate or operative; (2) post-operative; (3) removing the primary focus

Operative Treatment

Operation consists in opening and evacuating the abscess cavity which lies behind the pharynx and in front of the prevertebral fascia almost invariably to one side of the mid-line The difficulties and dangers associated with such a simple procedure are due to the position of the abscess at the inlet of the respiratory tract, the necessary precautions are directed to the maintenance of an open airway

The patient is placed in the dorsal position on the operating table with a sandbag under the shoulders The head is extended as far as possible and the end of the table is lowered to lessen the risk of pus being aspirated into the lungs The surgeon sits at the patient's head A good light, though not essential, adds precision to the final stages of the operation If an overhead multiple-reflecting lamp is not obtainable, the Milsom-Davidson tonsil lamp is an excellent and portable substitute Many operators prefer to use no anæsthetic, and only light open ether is permissible The mouth is gagged open as widely as respiration permits and the tongue seized with spiked forceps A scalpel, guarded by adhesive plaster except at its distal quarter inch, is plunged into the wall of the abscess and at once withdrawn There is an immediate rush of pus varying in amount with the size of the abscess If the mouth and pharynx immediately fill, the surgeon should use gravity to the fullest extent by asking an assistant to lift the patient by the legs, he meanwhile controlling the head and assisting gravity by rapidly swabbing out the pus Adults or large children must be turned on the same side as the abscess Respiration will proceed unimpeded when the first rush of pus has subsided, and the operation may be completed at leisure. It is now that an anæsthetic is useful. The incision is enlarged if necessary to admit the tip of a finger, and the abscess cavity is digitally explored The opening must extend down the pharynx to the limit of the cavity, the importance of this step is second only to that of safeguarding the child's life in the first part of the operation This downward extension of the incision is best accomplished by the finger and sometimes requires a little force Finally, a thorough inspection is made of the cavity, which is cleaned with ribbon gauze and left open The patient is returned to bed and if ether has been given he is placed upon his side until consciousness returns, then moved to the sitting position and kept there If no anæsthetic is used he should be sat up immediately the operation is finished Sometimes it will be necessary to consider immediate operation either in the patient's house or the doctor's surgery Although the practitioner may quite fairly be anxious to get the child into hospital or into the hands of a surgeon he should not hesitate to operate himself if he thinks the unavoidable minimum of delay is likely to be dangerous In making this decision, he should be guided by the degree of respiratory embarrassment present and the rate at which it is progressing If the child does not seem to have become worse during the last few hours it will probably be safe to wait until further arrangements can be made Any cyanosis must be taken as a danger signal demanding immediate operation because small children are most intolerant of even slight degrees of asphyxia It must not be thought, however, that cyanosis is the key to the decision as it occurs late and the real danger is syncope rather than asphyxia If immediate interference is necessary, the doctor should rapidly perform the operation described above with such modification as circumstances may dictate Tracheotomy should never be necessary.

When treatment is undertaken in the casualty or out-patient department of a hospital, the patient ought, if possible to be admitted for at least one night after operation

It may be thought that in these enlightened times, with our aspirating needles and evacuating motors, we need no longer have recourse to such mediæval practices as are implied by guarded scalpels and holding patients upside down It is doubtful, however whether modern methods or instruments have contributed anything to this particular operation. Moreover, the mechanical factor is sometimes less reliable than the human, and a momentary hitch may be a very serious matter for a child undergoing operation for retropharyngeal abscess

Post-operative Treatment

The ordinary acute case is well in from three to five days, but about half the patients will require treatment in bed for a longer time The commonest complications are septic bronchitis, broncho-pneumonia, refilling of the abscess cavity, and mediastinitis The best treatment of all four complications is prophylaxis during the operation, and it is doubtful how far drugs are effective either in the primary condition or its complications If a local application is used after operation, chloramine ½ per cent as a throat spray is satisfactory, and a mixture containing ammonium carbonate and ipecacuanha is usually given for bronchitis If the abscess cavity refills it is nearly always because the incision has not been carried low enough and this must be corrected at once

It is remarkable that some of these patients after operation will suffer from diurnal fever up to 104° F. and yet make a gradual and complete recovery, even though high fever may have persisted for a long time—e g, 39 and 21 days

Removing the Primary Focus

The infecting organism is almost always the streptococcus, and its port of entry the tonsil As soon as the patient has recovered from his acute illness the tonsils must be dissected and the adenoids removed In retropharyngeal abscess, as in acute mastoiditis, a slow convalescence can sometimes be surprisingly hastened by a timely removal of the primary focus When a small abscess is present, it is sometimes good practice to remove the tonsils and adenoids at the same time as the abscess is evacuated The youth of the patient is no bar to the removal of tonsils and adenoids if Waugh's method be used A retropharyngeal abscess left to itself will probably kill the patient, nevertheless it is a disease amenable to surgery of the simplest kind, and demands only a careful attention to detail to give the most satisfactory results Sudden deaths, however, do occur, and although the mortality after operation is probably less than 5 per cent, the prognosis must always be guarded

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LADIES' COMMITTEE AT ST GEORGE'S HOSPITAL—Princess Marie Louise presided recently at the inaugural meeting of the Ladies' Committee which has just been formed to help St. George's Hospital It was announced that Mr Bernhard Baron had given £5000 The hospital is in need of a good supply of radium, about £2000 worth being required

EXTENSION OF MANSFIELD HOSPITAL—Plans have been approved for the enlargement of Mansfield and District Hospital at a cost of £50,000, of which £10 000 has been given by the Bolsover Colliery Company and £5000 by the Sherwood Colliery Company The extensions will increase the number of beds from 112 to about 180 The institution serves a population of 150 000, which is rapidly increasing in consequence of the development of the North Nottinghamshire coalfield

Special Articles.

THE TREATMENT OF VENEREAL DISEASES

MEETING AT CAMBRIDGE

THE first provincial meeting of the Medical Society for the Study of Venereal Diseases was held at Cambridge on Jan 29th Sir HUMPHRY ROLLESTON, President of the Society, took the chair and opened the proceedings with an address on

SPECIALISM IN MEDICINE

The Society, he said, confined its energies to the medical aspects of a most important cause of individual disease and of national deterioration The question whether or not specialism was good or bad for medicine as a whole had been settled long ago, but with the birth of each new specialty there was always a feeling of reluctance of the parent body to part with its offspring There was, of course, a good deal to be said against the progressive disintegration of medicine entailed by the segregation of those specially interested in a particular organ or part of the body, for eventually, if carried to its logical conclusion, the mosaic of general medicine might be so broken up as to bring about a reversion to the state of affairs in ancient Egypt about 500 B C, when each disease had its own expert who did not concern himself with anything else

With the ever-increasing scope of medicine and surgery the evolution of specialism had kept pace, first came special hospitals, such as the Royal Ophthalmic Hospital, Moorfields (1804), the Royal Hospital for Diseases of the Chest (1814), the Royal Ear Hospital (1814) then special departments at general hospitals were started and were officered by their own general physicians and surgeons The special hospitals had naturally been first in the field with medical officers who confined their activities to the diseases treated at the hospital, but he could remember the time when nearly all the surgeons at the Royal Ophthalmic Hospital were general surgeons on the staff of teaching hospitals

What were the reasons, asked the President, which should weigh in deciding what was and what was not a real and legitimate specialty? The amount of special knowledge and experience must be so considerable as to make it extremely difficult, if not impossible, for a general physician, surgeon, or practitioner competently and conscientiously to undertake the work and responsibilities in addition to his other manifold duties The second and probably the more important criterion was the degree of technical skill required for discharge of the methods of diagnosis and treatment of the conditions constituting the particular branch of medicine or surgery In the early treatment of venereal disease, if it was to be efficiently carried out, the technique demanded considerable training and experience, and, in order to maintain the standard consistent with the best results, constant practice was essential A third reason for the establishment of a specialty was to counteract, in the interests of the public, the activities of irregular practitioners for any branch of the healing art which did not greatly interest the majority of medical men was likely to be neglected, and as a result there was an opening for irregular practitioners In no branch of medicine was there more danger than in venereal disease that members of the public would resort to advertising quacks

The real function of a specialty was essentially to facilitate intensive study of the subject and to perfect technique Those working in special departments, therefore, were leaders and courts of appeal for the rank and file of the profession, who necessarily had to deal with the bulk of the patients To recall this might not be out of place in the light of the dictum of a practitioner, probably irritated by the real or fancied loss of his clients, "Never send a patient to a specialist" "Specialist" and "consultant" were not quite synonymous terms in practice, though the specialist was much the same as a consulting surgeon in operating on patients whereas a consulting physician's activity was usually limited to prescriptions and verbal advice The true and most beneficial function of a specialist was of course, to be the guide and co-worker of the medical practitioner, and not to take his place entirely

Relation of Syphilology to Other Specialties

Venereal disease in the past, continued the President, had been more closely allied with what, in contra distinction to internal medicine, the province of the physician, might be called external medicine—namely, surgery and especially urology, so that genito-urinary departments had undertaken the treatment of syphilis and gonorrhœa More recently dermatology, which more justly deserved the title "external medicine," had taken syphilis under its wing, as was shown by the names of various journals such as the *British Journal of Dermatology and Syphilis* Syphilis—which obviously had important relations with dermatology, as it had with all organs of the body—had thus been separated from gonorrhœa, which had so few connexions with dermatology This was an artificial distinction, as it separated two diseases of venereal origin The position of venereal disease as a special branch of medicine based particularly on ætiological considerations was rather different from that of other specialties which dealt with the disorders, whatever their nature, of an organ, locality, or system Further, the late results of syphilis, which might occur in practically every tissue and part of the body, brought it into close relation with all the divisions of medicine But these late results of syphilis should be under the care of the general physician, surgeon, or practitioner rather than exclusively of the specialist in venereal diseases On the whole there was more to be said in favour of allying venereal diseases with genito-urinary disease as a comprehensive specialty than for their association with dermatology With some familiar exceptions gonorrhœa and syphilis in their early stages were local lesions on the genitals and so must be distinguished from non-venereal diseases in the same region, and the complications of gonococcal infection mainly came within the scope of genito-urinary surgery But genito-urinary workers had comparatively recently (1920) united with those interested in the medical diseases of the kidney to form a section of urology at the Royal Society of Medicine, so that there was an opportunity for a triple alliance and extended team-work

The study of venereal disease, said the President in conclusion, could not be a subordinate part of any other specialty, for this would narrow its outlook and activities, it demanded intensive work, special technique, and thus, as the special departments and clinics for venereal diseases at the hospitals and under the Ministry of Health showed, had won its place as a recognised specialty The opportunities for research were most attractive and its potentialities for good in improving the national health must appeal to all who had humanitarian and sociological ambitions

After the President's address two films dealing with gonorrhœa and three films on syphilitic infection and the technique of its diagnosis were shown by Lieut-Colonel L W HARRISON Before showing his films Colonel Harrison said that the primary object of the demonstration was to popularise a method of teaching by cinematograph demonstration

Gonococcus and Streptococcus

Dr CHARLES SEARLE described three cases of septicæmia which arose after gonococcal infection This form of septicæmia, he said, was commoner in men than in women, and in pregnant than in non-pregnant women, and was more often responsible for fatal puerperal septicæmia than was, perhaps, generally realised, in fact, of the 6000 deaths every year in childbirth a very large proportion were from this cause Infection occurred through an abrasion of the mucous membrane which in a man might be due to the passage of a metal bougie Dr Searle then showed specimens from two single young girls of 20 years of age who came from the country

The first girl came in desperately ill and practically moribund with a temperature of 103° F, which was rather unusual in such cases She had been under treatment privately for six months for a vaginal discharge When he gave her the ordinary routine examination much to his surprise he found a foreign body in her posterior fornix which turned out to be a hairpin She admitted that she had run risks, but would not admit that in order to procure abortion she had inserted a hairpin which had actually penetrated into the bladder She died with streptococcal abscess in her kidneys and general septicæmia

The second girl first came to the clinic 15 months before her death, but ceased to attend before her course was completed Seen 15 months later she had chronic gonorrhœa and was ten months pregnant She had also a contracted pelvis which necessitated craniotomy Within 56 hours of her confinement she had a very slight rise of temperature, never much above 100°, and without much increase in pulse-rate, and she died of septicæmia after 20 minutes' unconsciousness

Dr Searle's experience was that they only found the gonococcus in one case out of 20, and that the gonococcus paved the way for the streptococcus There were several things they had to learn from those cases, it was quite certain that prenatal treatment would do a great deal to save such women if caught at an early stage The Society could do a great deal by propaganda among midwives and general practitioners, urging them to send any cases of possible gonorrhœa By 15 days' in-patient treatment they could very often cure these patients, but it was very difficult to tell whether they were clear or not In Cambridge they had not the proper facilities for dealing with these cases, nor the necessary lying-in beds

Dr J R C **Canney** thought that it had been rather lost sight of that the gonococcus made the way easy for the streptococcus to do its worst Of late a big move had been made to try to reduce the incidence of puerperal septicæmia, and some interesting work had been done with regard to the bacteriology of the vagina and cervix during pregnancy In quite a large proportion of pregnant women it had been found that virulent streptococci were actually growing in the cervical canal It was, therefore, not difficult to understand, if those conditions were present, why septicæmia was common He did not say that all such cases with infected genital tracts had previously been infected with gonorrhœa, but a very mild unrecognised attack of it might have been a predisposing cause in a fair proportion of cases

Colonel **Harrison** had long been convinced that the gonococcus was responsible for a good deal of puerperal septicæmia It had been found that in the venereal wards the maternity cases ran at a more level temperature than in the other wards of a maternity hospital He thought that was due to the fact that they had had antenatal treatment If beds were wanted locally, and they could prevail on the local authority to apply to the Ministry of Health they would find that the Ministry was very sympathetic

Dr D C **Logan** had been informed by one of the Ministry of Health inspectors of the venereal diseases block of the maternity hospital of which she was in charge that the morbidity was on the whole less than in the clean blocks of the hospital They usually got their cases at that particular hospital a good long time before confinement was due The hospital was associated with hostels and they often had the opportunity of getting the cases when the patients were only about five months pregnant In a large proportion of cases the gonococcus could not be found The clinical history was often suggestive and they found that a very large proportion of the cases they dealt with were originally gonorrhœal, secondary infection resulting in many cases On the whole they had been very fortunate, and she thought it was because they managed to get early treatment Where they did get temperatures they usually occurred among the cases which they had not had under treatment or observation for any long time

Dr D **Nabarro** said that he had great faith in the antenatal treatment of those cases It was astounding to him, when he first started that work to see the women who came up with tremendous discharges After they had been treated they cleared up and had a normal confinement He would like to urge that every town with a population large enough to support it should have a hospital for the treatment of such cases

After the meeting a dinner was held in the Old Library of Pembroke College at which Sir Humphry Rolleston presided, and some 30 to 40 members and their friends were present

IRELAND

(From our own Correspondent)

Paying Patients and Public Hospitals

The Department of Local Government and Public Health has recently circulated to county boards of health throughout the Free State a draft copy of regulations to cover the admission of paying patients to public hospitals For such patients to be admitted, regulations must be adopted by the county board of health and approved by the Minister. It is to be noted that in some counties it was one of the terms of appointment of the surgeon to the county hospital that he should be permitted to treat paying patients in the hospital, but in few areas regulations have been adopted to give legal sanction to this arrangement The draft regulations now issued are carefully framed They provide that a county board of health may set aside a ward or wards as paying wards, for the reception, maintenance, and treatment of persons not eligible for relief, that any person seeking admission to such wards must apply to the surgeon, or if he is absent, in case of urgency, to the matron, that any person so admitted shall pay a certain arranged sum for each day he is in hospital, together with appropriate additional charges for any special nursing or other expenses incurred in connexion with his treatment; that the surgeon may agree with such person as to the terms upon which he shall be treated, but that he shall out of any such sums received by him make good to the board of health any sums due by the patient to the board of health, and not paid to or recovered by the hospital, that the surgeon, if the patient so requires, shall permit any duly qualified medical practitioner to have access to such patient and shall, so far as possible, act in consultation with such practitioner

The draft regulations appear to meet the claims put forward on behalf of the medical profession at different times In particular, the provision which permits a paying patient to retain the services of his own doctor meets the objection, often raised, to the privileged position which the right to admit paying patients to a public hospital gives to the surgeon of the hospital With goodwill between the hospital surgeon and his medical neighbours the regulations should work well

The Training of Nurses

Miss K Price secretary of the Irish Nurses' Union gave evidence last week before the Commission on Technical Education She pointed out that where candidates had only national school education, the gap between the school-leaving age of 14 and the entry to hospital at 18 to 21 was injurious She suggested that the gap might be filled by a preliminary course in domestic service, hygiene, and physiology She thought the profession of nursing much overstocked in Ireland There was no general pension scheme for nurses and nurses had to continue working till they dropped Salaries were lower in Ireland than in England

CERTIFICATION OF THE CAUSES OF DEATH.

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The new manual of the International List of Causes of Death, as adapted for use in England and Wales, Scotland and Northern Ireland, has just been issued by the Stationery Office (1926 2s) The International List was revised at a conference held in Paris in 1920, but its publication was delayed until 1923 by the death of Dr Jacques Bertillon, Secretary-General of the Conference, and the present explanatory manual has taken another three years to prepare It has now been issued on the authority of the Registrars-General of the three countries with a view to providing for the use of public health officers, the medical profession generally, and any others interested, an official statement of the practice in force in the several parts of the United Kingdom with regard to the classification of causes of death The object of the manual is twofold (1) to ensure uniformity of practice in tabulation, and (2) to elucidate the precise significance of each title in the list by cataloguing the forms of death certificate assigned to it A similar manual has been issued for the United States of America The present British manual differs from its first issue in 1912 by various adaptations to local national requirements and by a revision of the rules followed in selecting a single cause for tabulation out of two or more recorded on the same death certificate The Health Section of the League of Nations is now making an endeavour to increase the comparability of the death statistics of the countries issuing the International List and the revisers of the manual have therefore considered the present time inopportune to make any considerable change They suggest, however, that the utility of an arbitrary code of rules in the tabulating department would be greatly affected if it were found possible for the death certificate itself to contain such indications as would enable the selection to be determined by the practitioner's own separate judgment

TABULATION OF CERTIFICATES AT THE HEAD OFFICE

The manual sets out the principles on which one cause is selected for statistical purposes when several causes are stated on the certificate The rules are not quite the same for all parts of the country In England, Wales, and Northern Ireland the general order of preference is as follows —

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(3) Local diseases,
(4) Ill-defined causes of death

Selection when more than One Cause of Death is Stated

Violence —Where any forms of violence and disease are jointly stated as causes of death, the violence is to be preferred except in the following instances —

(*a*) Deaths from any definite disease stated to have been accelerated, aggravated, &c, by accident are to be classed to the disease

(*b*) Deaths during or resultant from operation or the administration of an anæsthetic are to be classed to the disease or injury for which the operation was performed

(*c*) Deaths from pneumonia or other lung diseases consequent upon accidental immersion are to be classed to the disease

(*d*) Deaths from injuries received during an epileptic or apoplectic fit are to be classed to epilepsy or apoplexy as the case may be

(*e*) Deaths from tetanus, erysipelas, pyæmia, septicæmia, blood poisoning, &c, following accident are to be classed to the disease if the injury was slight, such as "scratch" or 'abrasion," but if the injury was apparently severe enough to be of itself dangerous to life—e g, by vehicle, machinery, &c —the death is to be classed to violence

(*f*) Deaths from fracture occurring as a consequence of cancer are to be classed to cancer

Epidemic, Infectious and General Diseases —Any disease in these classes is to be preferred to any local disease except tabes dorsalis (locomotor ataxy), general paralysis of the insane, and aneurysm, which for this purpose are included with the general diseases in Group III and strangulated hernia and acute intestinal obstruction, puerperal sepsis and puerperal phlegmasia alba dolens not returned as septic which are included in Group I below The trifling exceptions to this rule are in regard to —

(*a*) Tumours not returned as malignant (brain and female genital organs excepted), diseases of the endocrine glands (diseases of the pituitary gland and adrenals and exophthalmic goitre excepted) which for this purpose are regarded as local diseases, and

(*b*) Thrush, undefined anæmia and chlorosis, chronic rheumatism and alcoholism, however stated, in view of the treatment of organic disease attributed to it which, for this purpose, rank below all except the ill-defined causes of death

The general diseases are divided into four groups in order of their importance for the purpose of selection. Any disease in Group I is to be selected in preference to any other not in Group I, any in Group II is to be preferred to any other not in Groups I and II, and so on If two or more of the diseases in any group are stated together the disease of longest duration or that first mentioned in the certificate, should as a rule be chosen

Group I —Small-pox, asiatic cholera, spirochætosis ictero-hæmorrhagica, acute poliomyelitis, encephalitis lethargica, meningococcal meningitis, epidemic hiccough, glanders, anthrax, rabies, tetanus, cancer (all forms), chronic poisonings by mineral and organic substances, strangulated hernia and acute intestinal obstruction, puerperal sepsis, puerperal phlegmasia alba dolens not returned as septic and other diseases of exceptional interest when occurring in this country, such as Mediterranean fever, plague yellow fever, leprosy, kala-azar, trypanosomiasis, pellagra, beri beri, &c

Group II —Enteric fever, typhus, relapsing fever (*Spirillum Obermeieri*), malaria, measles, scarlet fever, whooping-cough, diphtheria, dysentery

Group III —Influenza, mycoses (except thrush), tuberculosis (all forms), venereal diseases, rheumatic fever, diseases of the adrenals, tabes dorsalis (locomotor ataxy), general paralysis of the insane, aneurysm

Group IV —Mumps, erysipelas, German measles, varicella, purulent infection, septicæmia, chronic arthritis rheumatoid arthritis, osteo-arthritis gout, scurvy, rickets, diabetes, pernicious anæmia, diseases of the pituitary gland, exophthalmic goitre, leukæmia, lymphadenoma, other general diseases

If one of the causes mentioned is an immediate and frequent complication of another, the primary disease should be preferred to its complication Some special rules apply to the headings congenital malformations, icterus neonatorum, premature birth, injury at birth, "other diseases peculiar to early infancy" Under 3 months these conditions are to be preferred to any disease except syphilis and the diseases in Groups I and II Over 3 months any definite disease not presumably the consequence of a congenital defect is to be preferred to these conditions Premature birth is to be preferred to the other conditions enumerated At the other end of life, congenital debility and sclerema and senile decay are to be treated as ill-defined causes of death Lack of care is to be treated for this purpose as a form of violence Senile dementia is to be treated in the same manner as other forms of insanity

Local Diseases —The following are to be selected in preference to any other local diseases except tabes dorsalis (locomotor ataxy), general paralysis of the insane, aneurysm, strangulated hernia and acute intestinal obstruction and puerperal sepsis, phlegmasia alba dolens not returned as septic

(*a*) Malignant endocarditis, lobar pneumonia, infective enteritis and synonyms, parasitic diseases (except thrush), appendicitis, carbuncle, boil, cellulitis

(*b*) Other diseases of the spinal cord, cerebral tumour, other forms of insanity, epilepsy, idiocy, imbecility, senile dementia disseminated sclerosis, paralysis agitans,

A disease in (*a*) is to be preferred to any disease in (*b*) Where two or more local diseases, neither of which is included in the preceding list, are certified

together, that of longest duration should be preferred; if duration is not recorded any disease of a chronic nature should be preferred to a disease not so characterised; if neither disease can be assumed to be chronic, the first mentioned on a *medical* certificate should be selected Exceptions to this rule are as follows Any definite disease of the heart or kidney is to be preferred to any disease of the respiratory system "Congestion" of any organ, convulsions (non-puerperal), "hæmorrhage" without stated cause, laryngismus stridulus, and dyspepsia rank below all except the ill-defined causes of death Arterio-sclerosis, heart diseases, cirrhosis of the liver and chronic nephritis (including unspecified over 10 years of age) are to be preferred to cerebral hæmorrhage, apoplexy, &c, and hemiplegia which on the other hand are to be preferred to bronchitis Broncho-pneumonia, and pneumonia not otherwise defined, are to be preferred to bronchitis In the case of deaths occurring in mental institutions, nervous diseases are to be preferred to other local diseases, except those receiving special preference

Simpler Procedure in Scotland

In Scotland the rules are of a simpler character Preferences are to be applied in the order named and no one to be applied unless those preceding it are found inapplicable These preferences are as follows

1 Violence, except (*a*) trivial injuries combined with tetanus, erysipelas or septicæmia, (*b*) injuries received in epileptic or apoplectic fits and (*c*) deaths from anæsthetics during surgical operations

2 Infectious diseases, those of very low case mortality, such as chicken-pox, excepted

3 Diseases and accidents of pregnancy and parturition

4 More fatal diseases, such as cancer, tubercle, diabetes, Bright's disease, aneurysm, strangulated hernia, and intestinal obstruction Pneumonia to be preferred to bronchitis

5 A disease which is primary to one which is secondary Thus valvular heart disease is to be preferred to congestion of the lungs, pneumonia to meningitis, and many diseases to diarrhœa

6 Acute diseases are to be preferred to chronic

7 A disease named in the list of Causes of Death is to be preferred to one not so named but included in a general heading (e g, Other Diseases of the Respiratory System)

8 If none of the above preferences apply, the cause named by the certifier as primary is to be taken

FILLING-UP THE CERTIFICATE

The manual makes a number of suggestions to medical practitioners respecting certificates of causes of death It is regarded as highly desirable that medical practitioners should use in their certificates of death only those terms which are recognised in the nomenclature of the Royal College of Physicians of London When this is done, no difficulty is met with, generally speaking, in referring deaths to their proper heading in the International List of Causes of Death, as now adopted for use in the Registrar-General's Reports

Suggestions to Medical Practitioners

An alphabetical list is appended of unauthorised and indefinite or otherwise *undesirable terms* more or less commonly used in death certification, with comments indicating how the term is objectionable and what further information as to the cause of death is required in each case Some of these *terms are in* themselves objectionable as descriptive of the cause of any individual death, while others require to be supplemented in the manner indicated A few unobjectionable terms are included in the list for special reasons This list is intended for reference only, and it is hoped that it will be consulted by certifying practitioners in any case in which they are not assured that the term used by them is included in the nomenclature of the Royal College of Physicians

From the list of unauthorised or indefinite terms at present used on death certificates the following are selected from 133 examples given by the Registrar-General Suggestions of a similar character are issued to medical practitioners in Scotland

Examples of Undesirable Terms

Ref No	Indefinite or undesirable term *	Further information required (if available), and notes on the use of certain terms
1	Abscess	State cause (especially whether tuberculosis) and situation
6	Aortitis, arteritis, endarteritis	Was the condition due to syphilis? (If so, see No 118)
10	Blood poisoning	Variety of toxic condition present (pyæmia, septicæmia, &c), and cause of this condition
13	Cachexia	Disease causing this condition
21	Catarrh—	Term best avoided if possible
22	of bowels	Taken as equivalent to— Diarrhœa †
23	of lungs	Bronchitis †
24	of stomach	Gastritis †
27	Cerebro spinal meningitis	Cause of this condition Always certify "epidemic cerebro spinal meningitis" or "cerebro spinal fever," if this disease is meant
28	Childbirth	How this physiological process caused death
29	Cirrhosis of liver	Cause of this condition
33	Congestion of brain, kidney, liver, or other organ	If the disease amounted to an inflammation, use the appropriate term (lobar or broncho-pneumonia, acute or chronic nephritis, &c) Merely passive congestion should not be reported as a cause of death when the primary disease can be ascertained a cause of death when the primary
35	Croup	*Disease causing this condition, as diph*theria, laryngitis, laryngismus stridulus, &c Avoid using the word croup at all
43	Diarrhœa	Avoid certifying under this head in cases where the diarrhœa was merely symptomatic
48	Eclampsia	Disease causing this condition Was it puerperal?
57	General paralysis, paresis	If generaly paralysis of the insane is meant add the words "of the insane," and in all other cases indicate the disease causing the condition
59	Growth, new growth, tumour	Situation and nature of growth, if known If not known, add "nature unknown"
61	Hæmoptysis	Disease causing this condition Was it a case of tuberculous phthisis?
72	Lumbar abscess	Cause and site of origin Was it tuberculous?
73	Malignant disease	Taken as equivalent to cancer The word malignant should never be used in reference to any other disease, when such use may cause confusion with cancer
82	Nephritis	Acute or chronic? Was it associated with pregnancy? Did it result from scarlet fever or any other disease?
89	Papilloma of bladder	This tumour is listed under benign tumours by the Royal College of Physicians, and should not be applied to villous carcinoma
90	Phthisis	Avoid using this term without qualification as to nature Always state whether tuberculous
104	Pneumothorax	Disease causing this condition
106	Puerperal fever	Avoid the use of this indefinite term by stating the form of puerperal infection —e g, puerperal pyæmia, puerperal septicæmia, puerperal septic intoxication, puerperal phlebitis, &c
110	Rheumatic arthritis	Always state whether acute, subacute, or chronic
111	Rheumatism	
112	Rodent ulcer	Position of ulcer
113	Rubeola	Term best avoided, as it is used for both measles and German measles
117	Softening of brain	Cause of this condition (embolism &c) The term should not be applied to senile dementia nor to general paralysis of the insane
118	Specific disease	The word "specific" will always be understood in the sense of syphilitic
125	Teething	Disease causing death
130	Uræmia	Cause of uræmia Was it due to puerperal, post scarlatinal or other acute nephritis, chronic *Bright's* disease, &c?

* When used without further particulars indicated in Col 3

† The alternative form of statement is much to be preferred

In cases where an indefinite term has to be employed because more definite information is lacking it would be well to indicate this fact in the certificate The word *idiopathic* will be understood as indicating that the probable cause of the condition stated is unknown —e g, idiopathic atrophy, idiopathic convulsions, idiopathic peritonitis, &c

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21	Catarrh—	Term best avoided if possible
22	of bowels	Taken as equivalent to— Diarrhœa †
23	of lungs	Bronchitis †
24	of stomach	Gastritis †
27	Cerebro spinal meningitis	Cause of this condition Always certify "epidemic cerebro spinal meningitis" or "cerebro spinal fever," if this disease is meant
28	Childbirth	How this physiological process caused death
29	Cirrhosis of liver	Cause of this condition
33	Congestion of brain, kidney, liver or other organ	If the disease amounted to an inflammation use the appropriate term (lobar or broncho pneumonia acute or chronic nephritis &c) Merely passive congestion should not be reported as a cause of death when the primary disease can be ascertained a cause of death when the primary
35	Croup	Disease causing this condition as diphtheria laryngitis, laryngismus stridulus, &c Avoid using the word croup at all
13	Diarrhœa	Avoid certifying under this head in cases where the diarrhœa was merely symptomatic
48	Eclampsia	Disease causing this condition Was it puerperal?
57	General paralysis, paresis	If generally paralysis of the insane is meant add the words "of the insane," and in all other cases indicate the disease causing the condition
59	Growth new growth, tumour	Situation and nature of growth if known If not known, add "nature unknown"
61	Hæmoptysis	Disease causing this condition Was it a case of tuberculous phthisis?
72	Lumbar abscess	Cause and site of origin Was it tuberculous?
73	Malignant disease	Taken as equivalent to cancer The word malignant should never be used in reference to any other disease, when such use may cause confusion with cancer
82	Nephritis	Acute or chronic? Was it associated with pregnancy? Did it result from scarlet fever or any other disease?
89	Papilloma of bladder	This tumour is listed under benign tumours by the Royal College of Physicians, and should not be applied to villous carcinoma
99	Phthisis	Avoid using this term without qualification as to nature Always state whether tuberculous
104	Pneumothorax.	Disease causing this condition.
106	Puerperal fever	Avoid the use of this indefinite term by stating the form of puerperal infection —e g, puerperal pyæmia puerperal septicæmia, puerperal septic intoxication, puerperal phlebitis, &c
110	Rheumatic arthritis	Always state whether acute, subacute, or chronic
111	Rheumatism	
112	Rodent ulcer	Position of ulcer
113	Rubeola	Term best avoided, as it is used for both measles and German measles
117	Softening of brain	Cause of this condition (embolism, &c). The term should not be applied to senile dementia nor to general paralysis of the insane
118	Specific disease	The word 'specific" will always be understood in the sense of syphilitic.
125	Teething	Disease causing death
130	Uræmia	Cause of uræmia Was it due to puerperal, post scarlatinal or other acute nephritis, chronic Bright's disease, &c?

* When used without further particulars indicated in Col 3

† The alternative form of statement is much to be preferred

In cases where an indefinite term has to be employed because more definite information is lacking it would be well to indicate this fact in the certificate The word *idiopathic* will be understood as indicating that the probable cause of the condition stated is unknown —e g, idiopathic atrophy, idiopathic convulsions, idiopathic peritonitis, &c

CERTIFICATION OF THE CAUSES OF DEATH.

ISSUE OF A NEW MANUAL ON THE INTERNATIONAL LIST

The new manual of the International List of Causes of Death, as adapted for use in England and Wales, Scotland and Northern Ireland, has just been issued by the Stationery Office (1926 2*s*) The International List was revised at a conference held in Paris in 1920, but its publication was delayed until 1923 by the death of Dr. Jacques Bertillon, Secretary-General of the Conference, and the present explanatory manual has taken another three years to prepare It has now been issued on the authority of the Registrars-General of the three countries with a view to providing for the use of public health officers, the medical profession generally, and any others interested, an official statement of the practice in force in the several parts of the United Kingdom with regard to the classification of causes of death The object of the manual is twofold (1) to ensure uniformity of practice in tabulation, and (2) to elucidate the precise significance of each title in the list by cataloguing the forms of death certificate assigned to it A similar manual has been issued for the United States of America The present British manual differs from its first issue in 1912 by various adaptations to local national requirements and by a revision of the rules followed in selecting a single cause for tabulation out of two or more recorded on the same death certificate The Health Section of the League of Nations is now making an endeavour to increase the comparability of the death statistics of the countries issuing the International List and the revisers of the manual have therefore considered the present time inopportune to make any considerable change They suggest, however, that the utility of an arbitrary code of rules in the tabulating department would be greatly affected if it were found possible for the death certificate itself to contain such indications as would enable the selection to be determined by the practitioner's own separate judgment

Tabulation of Certificates at the Head Office

The manual sets out the principles on which one cause is selected for statistical purposes when several causes are stated on the certificate The rules are not quite the same for all parts of the country In England, Wales, and Northern Ireland the general order of preference is as follows —

(1) Violence ;
(2) Epidemic, Endemic, Infectious and General Diseases,
(3) Local diseases,
(4) Ill-defined causes of death

Selection when more than One Cause of Death is Stated

Violence —Where any forms of violence and disease are jointly stated as causes of death, the violence is to be preferred except in the following instances —

(*a*) Deaths from any definite disease stated to have been accelerated, aggravated, &c , by accident are to be classed to the disease

(*b*) Deaths during or resultant from operation or the administration of an anæsthetic are to be classed to the disease or injury for which the operation was performed

(*c*) Deaths from pneumonia or other lung diseases consequent upon accidental immersion are to be classed to the disease

(*d*) Deaths from injuries received during an epileptic or apoplectic fit are to be classed to epilepsy or apoplexy as the case may be

(*e*) Deaths from tetanus, erysipelas, pyæmia, septicæmia, blood poisoning, &c , following accident are to be classed to the disease if the injury was slight, such as "scratch" or ' abrasion," but if the injury was apparently severe enough to be of itself dangerous to life—e g , by vehicle, machinery, &c —the death is to be classed to violence

(*f*) Deaths from fracture occurring as a consequence of cancer are to be classed to cancer

Epidemic, Infectious and General Diseases —Any disease in these classes is to be preferred to any local disease except tabes dorsalis (locomotor ataxy) general paralysis of the insane, and aneurysm, which for this purpose are included with the general diseases in Group III and strangulated hernia and acute intestinal obstruction, puerperal sepsis and puerperal phlegmasia alba dolens not returned as septic which are included in Group I below The trifling exceptions to this rule are in regard to —

(*a*) Tumours not returned as malignant (brain and female genital organs excepted), diseases of the endocrine glands (diseases of the pituitary gland and adrenals and exophthalmic goitre excepted) which for this purpose are regarded as local diseases, and

(*b*) Thrush, undefined anæmia and chlorosis, chronic rheumatism and alcoholism, however stated, in view of the treatment of organic disease attributed to it which, for this purpose, rank below all except the ill-defined causes of death

The general diseases are divided into four groups in order of their importance for the purpose of selection Any disease in Group I is to be selected in preference to any other not in Group I , any in Group II is to be preferred to any other not in Groups I and II , and so on If two or more of the diseases in any group are stated together the disease of longest duration or that first mentioned in the certificate, should as a rule be chosen

Group I —Small-pox, asiatic cholera, spirochætosis ictero-hæmorrhagica, acute poliomyelitis, encephalitis lethargica, meningococcal meningitis, epidemic hiccough, glanders, anthrax, rabies, tetanus, cancer (all forms), chronic poisonings by mineral and organic substances, strangulated hernia and acute intestinal obstruction, puerperal sepsis, puerperal phlegmasia alba dolens not returned as septic, and other diseases of exceptional interest when occurring in this country, such as Mediterranean fever, plague, yellow fever, leprosy, kala-azar, trypanosomiasis, pellagra, beri beri, &c

Group II —Enteric fever, typhus, relapsing fever (*Spirillum Obermeieri*), malaria, measles, scarlet fever, whooping-cough, diphtheria, dysentery

Group III —Influenza, mycoses (except thrush), tuberculosis (all forms), venereal diseases, rheumatic fever, diseases of the adrenals, tabes dorsalis (locomotor ataxy), general paralysis of the insane, aneurysm

Group IV —Mumps, erysipelas, German measles, varicella, purulent infection, septicæmia, chronic arthritis, rheumatoid arthritis, osteo-arthritis gout, scurvy, rickets, diabetes, pernicious anæmia, diseases of the pituitary gland, exophthalmic goitre, leukæmia, lymphadenoma, other general diseases

If one of the causes mentioned is an immediate and frequent complication of another, the primary disease should be preferred to its complication Some special rules apply to the headings congenital malformations, icterus neonatorum, premature birth, injury at birth, " other diseases peculiar to early infancy " Under 3 months these conditions are to be preferred to any disease except syphilis and the diseases in Groups I and II Over 3 months any definite disease not presumably the consequence of a congenital defect is to be preferred to these conditions Premature birth is to be preferred to the other conditions enumerated At the other end of life, congenital debility and sclerema and senile decay are to be treated as ill-defined causes of death Lack of care is to be treated for this purpose as a form of violence Senile dementia is to be treated in the same manner as other forms of insanity

Local Diseases —The following are to be selected in preference to any other local diseases except tabes dorsalis (locomotor ataxy), general paralysis of the insane, aneurysm, strangulated hernia and acute intestinal obstruction and puerperal sepsis, phlegmasia alba dolens not returned as septic

(*a*) Malignant endocarditis, lobar pneumonia, infective enteritis and synonyms, parasitic diseases (except thrush), appendicitis, carbuncle, boil, cellulitis

(*b*) Other diseases of the spinal cord, other forms of insanity, epilepsy, idiocy, imbecility, cerebral tumour, disseminated sclerosis, paralysis agitans, senile dementia

A disease in (*a*) is to be preferred to any disease in (*b*) Where two or more local diseases, neither of which is included in the preceding list, are certified

He added that its operations. at present restricted to East India goat hair and Egyptian wool, ought soon to be extended to other infected materials Factory and Workshops Acts Regulations of 1907 dealt with the handling of horsehair from China, Siberia and Russia as a dangerous industry: they prescribed disinfectants forbade anyone to work on non-disinfected horsehair with any open cut or sore ordered cautionary notices about anthrax to be posted up on the premises and contained the usual provisions about the wearing of overalls the reporting of cuts and sores washing, and restriction of keeping or eating food in rooms where such horsehair is stored or manipulated Regulations of 1908 as to factories in which East Indian wool is used do not go quite so far, but the more recent Hides and Skins Regulations of 1921 are more elaborate They relate to premises where are handled dry or dry-salted hides or skins imported from Africa (including Madagascar) or Asia (including Japan and the Malay Archipelago) A cautionary notice is to be posted and first-aid boxes special clothing mess rooms and lavatories provided Employees must report cuts and sores to their foreman and must not handle hides till their injury is treated In the Folkestone case a factory inspector said he was satisfied that all regulations had been complied with Anthrax is a scheduled industrial disease under the Workmen s Compensation Act for workers who have to handle wool hair, bristles hides and skins Thus if such a worker contracts it the disease is deemed due to the nature of his employment unless the employer can prove the contrary

Verminous Insects in Turkish Baths

A plaintiff who paid 5s for spending a night in some Turkish baths in London, sued the proprietors for damages for personal injuries alleging that he had been bitten by verminous insects. After hearing the evidence the judge was satisfied that the plaintiff had been bitten by bugs that he had not been bitten before going to the baths that he was bitten while in the baths, and that he had not himself carried the bugs there The defendants argued that there was no implied warranty that the plaintiff should not be bitten and that there was no negligence on their part as they had taken all reasonable steps to keep their premises free from verminous insects The judge however found them liable in law as well as in fact, and awarded £52 10s damages with costs on the High Court scale As a matter of contract, he considered the defendants had impliedly agreed with the plaintiff that the premises were reasonably fit for use as Turkish baths and incidentally that the couches were reasonably fit to recline upon The parties must have contemplated that the cubicles and couches should be free from bugs or other harmful insects If there was this implied contract, it mattered nothing what steps the defendants had taken to render their premises fit if the plaintiff was injured, it availed the defendants nothing, though they had taken every possible step Apart from contract the defendants owed the plaintiff a duty not to be negligent. The plaintiff was not a mere invitee, but a person who had paid money for the right to use the premises If the premises were unfit and the defendants knew it, and allowed the plaintiff to use them without warning him of the danger, then the defendants would be liable if the plaintiff was thereby injured The judge held that the proprietors of the Turkish baths knew of the danger (there was evidence of various complaints to the staff of the baths from other users) and allowed the plaintiff to use the premises without warning him. He held that the plaintiff had suffered damage to the extent already stated by reason of the breach of warranty and the negligence Evidence was given at the trial to the effect that iron bedsteads had been substituted for wooden ones since the complaint had been made The proprietors of Turkish baths will no doubt note this ruling as to their legal liability. At one point in the case it had been suggested that the bites were due to mosquitoes, but there was clear evidence to the contrary.

Colonel Kynaston's Case: Summons Withdrawn

When proceedings were taken against Colonel Kynaston late R A M C., under the Dangerous Drugs Act the gist of the charge was that he not being then a registered medical practitioner, had prescribed powdered opium A further summons was also taken out against him in connexion with the same transactions charging him under the Medical Act with having unlawfully, wilfully, and falsely used the descriptions M R.C S and L R C P. Lond. When the prosecution secured his committal on the Dangerous Drugs Act and his conviction and punishment by fine at the Old Bailey the Medical Act summons was not proceeded with, but was adjourned *sine die* Subsequently, the Old Bailey conviction was quashed by the Court of Criminal Appeal on the ground that the charge had named the Dangerous Drugs Act of 1925 and that the 1925 Act was not yet in force but the Medical Act summons remained outstanding At Marlborough-street police-court on Feb 7th the prosecution applied to the magistrate, Mr Cancellor for permission to withdraw the summons, which would not have pursued if the conviction had stood

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THE CLOSING OF THE POST-GRADUATE HOSTEL.

A GENERAL *meeting of the vice-presidents and* supporters of the Post-Graduate Hostel was held at the Imperial Hotel on Monday Jan. 31st Sir D'Arcy Power President of the Hostel was in the chair, and there was a very poor attendance.

The Chairman reported that the financial basis on which the Hostel had been built up had failed. It had been expected that post-graduates would patronise the Imperial Hotel and its branches and thereby supply the Hostel, through the discount to be allowed by the hotel proprietors to the Hostel, with the income necessary for the carrying on of the discussions and the social activities of the Hostel. The Hostel had now been in operation for six months and although the discussions had been successful the number of people lodging in the Hostel had been very few and the Executive was now faced with a deficit of about £60, which was likely to increase unless a new financial basis were found for future operations He thought that probably the best way would be to bring the experiment to a close

After some discussion it was proposed by Dr. Andrew Balfour and seconded by Sir James Berry that the affairs of the Hostel be wound up. Both of them expressed their great reluctance in advocating this step but they felt that the encouragement received was not sufficient to justify the Executive in continuing It was probable that the locale of the Hostel had not been well chosen and at any rate it was certain that any experiment of the kind ought to have behind it either a sufficient capital sum to provide a really satisfactory hostel or a moderate but certain annual income if a smaller experiment were to be tried. The present movement had neither of these

Mr McAdam Eccles supported the motion, which was carried At the same time it was also resolved that a Committee, consisting of Sir D Arcy Power, Dr Andrew Balfour, Sir Thomas Horder the Honorary Treasurer and Dr Cox be appointed to wind up the affairs of the Hostel The proceedings closed with the cordial thanks of the meeting to Mr. A. P. Bertwistle, the Director of the Hostel for the great trouble he had taken and with a recognition of the success with which he had arranged interesting discussions

Most of those present dined together, and afterwards there was a meeting presided over by Sir Thomas Horder unfortunately with a very small attendance, to hear an address from Sir Arthur Robinson First Secretary of the Ministry of Health on Our Duty to

Primary and Secondary Causes.

By *primary cause of death* is meant (in the case of deaths from disease) the disease, present at the time of death, which initiated the train of events leading thereto, and *not* a mere secondary, contributory, or immediate cause, or a terminal condition or mode of death Acute specific diseases, if of recent occurrence, are to be considered the primary cause of death, even though the actual disease, as tested by power of infection, be no longer present at the time of death—e g, measles (primary) 12 days; broncho-pneumonia (secondary) 6 days In the case of deaths from cancer the seat of primary growth, even if this has been removed, should be stated if possible

A *terminal condition* or *mode of death* should not be entered as a secondary—i e, contributory—cause In a very large proportion of instances the statement of the primary cause gives all the information required; in these cases nothing is gained by adding as a secondary cause such a condition as syncope, heart failure, coma, exhaustion, &c Thus a certificate of pulmonary tuberculosis is not improved by addition of "exhaustion" as a secondary cause, though if a complication such as "pneumothorax" had supervened this should be noted as a contributory cause of death

In all cases "Yes" or "No" should be entered in the column headed *Post mortem* on the certificate

The Registrar-General will always be grateful to receive direct communications containing *information* as to causes of death which was not available when the certificate was issued These should be addressed to the Registrar-General, General Register Office, Somerset House, London, W C 2, and require no stamp Such information will not be incorporated in the record of the certificate, but will often be of the utmost value for statistical purposes If this course were adopted when the precise cause of death can be stated (in the light, for instance, of a post-mortem examination or of a microscopic or bacteriological investigation), many indefinite certificates could be correctly classified

Some Special Causes

In addition to the foregoing general considerations, the following points as to special causes of death call for attention —

(a) *Small-pox* —In certifying a death from small-pox the patient's condition with respect to vaccination should be carefully stated—say, in one or other of the following forms (1) No evidence of vaccination; (2) vaccinated in infancy only—number of scars (3) vaccinated only after infection by small-pox (4) stated to have been vaccinated, but no scars (If the patient has been revaccinated, the date should be given when possible)

(b) *Cancer* —Attention is particularly directed to the request that the seat of primary occurrence should be returned in all cases where known

(c) *Diarrhœa* —When this is due to improper feeding, or to any kind of food infection, the fact should be mentioned in the certificate The Royal College of Physicians having condemned the use of the terms *gastro-enteritis*, *muco-enteritis*, and *gastric catarrh* as alternatives for the authorised term "infective enteritis," it is hoped that the use of these italicised terms will be entirely discontinued

(d) *Childbirth* —Whenever parturition or miscarriage has been in any way a contributory cause of death, the fact should be mentioned on the certificates Always qualify all diseases resulting from childbirth or miscarriage as puerperal —e g, puerperal septicæmia, puerperal peritonitis, &c

(e) *Violence* —The term violence is understood as including all deaths from unnatural causes (including anæsthetics and poisons of all forms), whether accidental suicidal, or homicidal It is rarely the duty of medical practitioners to issue certificates in the case of deaths from recently sustained violence, but it must be borne in mind that if a coroner declines to hold an *inquest* upon such a death a medical practitioner who has attended the deceased is bound by Section 20 of the Births and Deaths Registration Act, 1874, to give a certificate of the cause of death When certifying deaths from violence which have not already been reported to the coroner (e g, *from* paraplegia due to violence sustained many years before death), medical practitioners should advise the friends of the deceased to inform that official forthwith

The following suggestions as to the form of certification of violent deaths are extracted from the Registrar General's Circular to His Majesty's Coroners (1911) —

> "In every case of death by violence or by suspected violence whether the death resulted from the violence itself or from a pathological state induced by it, the verdict should state the form and means of violence, its accidental, suicidal, or homicidal nature, and the nature of the injury—e g, fracture of skull (*nature of injury*) due to being *accidentally* run over (*form of violence*) by a motor car (*means of violence*)"

(f) *Operation* —In all cases where an operation has been performed for the disease or injury causing death, the operation as well as the disease or injury for which it was performed, and any secondary conditions contributory to death and resultant from the operation, should be mentioned on the certificate The interval between operation and death should also be recorded

(g) *Anæsthetics* —When death occurs during anæsthesia or is in any degree attributable thereto, the nature of the anæsthetic used should be recorded

The body of the manual is occupied by a tabular list under 205 headings, showing the terms included under each title of the detailed international list of causes of death as adapted for use in England and Wales, Scotland and Northern Ireland An index to the tabular list and alphabetical list of terms used in the certification of the cause of death occupies pages 50 to 135 and will be found invaluable for reference

MEDICINE AND THE LAW.

Anthrax Brush Factory Worker's Death

A VERDICT of death from anthrax was recorded on Feb 4th, at an inquest held upon the body of a boy employed in a Folkestone mop and brush factory He had developed a boil at the back of his neck, this was followed by a swelling as large as a man's fist in the front of the throat Subsequently, he was seized as with a fit, two doctors, called in just before he died, were unable to find the cause of illness Evidence at the inquest was to the effect that cultures taken from the spleen and from the carbuncle showed a typical growth of the anthrax bacillus The factory manager stated that the firm had obtained two lots of hair for making brushes The first consignment was English and Chinese horsehair, there were pig-bristles also from China, a small portion of the Chinese hair was in an open box in the room where the boy worked It was also stated that the factory premises were previously used as stables

Parliament has dealt with anthrax at several points In addition to the powers under the Diseases of Animals Acts, there is the Anthrax Prevention Act of 1919 and certain special provisions made departmentally under the Factory and Workshop Acts The 1919 Act authorised the prevention by Order in Council of the importation into the United Kingdom of goods infected or likely to be infected with anthrax The prohibition may be absolute or it may contain exceptions in favour of specified ports or be subject to specified conditions An Order in Council may declare goods which are of any specified class or origin, or which are exported from or through any specified country or place, to be goods likely to be infected with anthrax The first of these Orders prohibited the importation of Japanese shaving-brushes after Feb 9th, 1920 Another, in 1920, declared the following to be goods likely to be infected with anthrax All goat hair produced in or exported from or through India, all wool and animal hair produced in or exported from or through Egypt (including the Anglo-Egyptian Sudan) and all goods mixed therewith Importation of these is restricted to the port of Liverpool, and is subject to conditions as to labelling, prior notification and delivery to the Government Wool Disinfecting Station in that port Two years ago, in his book on "The Home Office" Sir Edward Troup wrote that this Liverpool Disinfecting Station, erected at a cost of £113,000, already pays its running expenses and gives excellent results

Obituary.

THOMAS ROBERT BRADSHAW, M D DUB, F R C P. LOND.

After a long illness, Dr T R Bradshaw died on Jan 25th at his home at Mold in North Wales, where he had lived since retiring from practice During the many years of his association with Liverpool hospitals he was recognised as a physician of real merit who brought to his work high qualities of mind and character

DR T R BRADSHAW

Born at Leamington in 1857, Thomas Robert Bradshaw was the son of John W Bradshaw, solicitor, of Dublin, and was educated in Dublin at the Rathmines Hospital and later at Trinity College He graduated M D in 1882, and later became M R C S Eng after a term of study at University College London His final settlement in Liverpool was largely due to the fact that his relative, the late Dr T H Waters was at this time physician to the Royal Infirmary and professor of medicine at University College in that city He first served as house physician and house surgeon at the Infirmary and at the Northern Hospital and was then elected successively to the honorary staff of the Stanley Hospital, the Northern Hospital and the Royal Infirmary This last appointment he held for 16 years In 1904 he was made a Fellow of the Royal College of Physicians of London

Dr Bradshaw wrote much on medical topics most of his papers appearing in the Liverpool medical journals The contributions to medicine which brought him most renown were perhaps those dealing with the morbid anatomy and pathology of myelopathic albumosuria The first observer in the English-speaking world (1897) to describe multiple myelomata occurring in conjunction with Bence-Jones albumose in the urine he was also the first to diagnose the condition correctly during life and was responsible for the hydrochloric acid test by which the protein is detected. His other communications dealt with subjects so widely diverse as cardiac murmurs, affections of the bronchi (on which he wrote for Quain's Dictionary of Medicine") the behaviour of litmus in amphoteric solutions Addison's disease and various neurological conditions He became lecturer in clinical medicine in the University of Liverpool and at one time examined for the University of London In 1910 the Liverpool Medical Institution elected him president In all his work there was evidence of literary taste as well as careful preparation and wide reading One of his chief interests was ecclesiastical architecture which he studied by taking excellent photographs

During the late war Dr Bradshaw worked for the First Western General Hospital He married in 1904 Rose Mary eldest daughter of Dr T R Glynn then professor of medicine in the University of Liverpool His widow survives him

JOSEPH JACKSON LISTER, F R S

Mr. Joseph Jackson Lister, who died on Feb 5th at his house in Cambridge was a nephew of Lord Lister and son of Arthur Lister, the distinguished botanist He was born in 1857 and was educated at St John's College Cambridge of which foundation he was a Fellow, and formed one of the group of young zoologists which made the Cambridge school of science famous 40 years ago to the immense benefit also of the school of medicine He was elected F R S in 1900 for his studies of the foraminifera, but his work was so much interfered with by his health that his qualities were little known outside an immediate circle but within that circle he enjoyed and rightly a high reputation both as man of science writer and colleague

JOHN HEDLEY M D DURH, L S A, J P.

Dr John Hedley, who died suddenly in London on Friday of last week of a heart attack, at the house of his son-in-law, Mr Douglas Harmer at the age of 84 years, had been the whole of his long life in general practice in Middlesbrough of which he was a worthy citizen

DR JOHN HEDLEY.

John Hedley was born at Ovingham Northumberland the youngest son of William Hedley and was educated privately at Stamfordham His father died when he was a boy and at the age of 15 years he was apprenticed to Dr James Aitchison of Wallsend taking at the same time a course at the Newcastle Medical School from which he qualified M R C S in 1864 and L S A in 1865 In the following year he began to practise in the town which was then little more than a large village and with the exception of a visit to France with the Red Cross in 1871 when he witnessed the surrender of Strasbourg, he practised continuously in Middlesbrough until his final retirement in 1918 He was soon appointed surgeon to the North Riding Infirmary and built up a large general practice on Tees-side often acting in a semi-official capacity as medical referee in compensation cases when his awards were accepted without demur as he was trusted by both sides He was himself certifying factory surgeon for the district only retiring from that post in his eighty-second year after an accidental fracture of his pelvis He assisted in a Home Office investigation into the epidemics of pneumonia in Middlesbrough and contributed an article to Oliver's "Industrial Diseases' After deciding in July 1914 to retire from active practice and enjoy some well-earned leisure he resumed his work again in November of that year, after war had broken out in order to release his successor for active service

He joined the Middlesbrough Town Council in 1886 was elected mayor in 1902 and held the office of alderman until two years ago He took the

Colonial Visitors Sir Arthur Robinson gave a most interesting account of the activities of the Ministry of Health in connexion with the subject of post-graduate education, which came in the nature of a surprise to most of those present He said it was unfortunate that his visit coincided with the closing down of the Hostel, but he felt sure that the effort had not been wasted and that the idea which had inspired the promoters of the Hostel could not die The time would undoubtedly come when London would provide a post-graduate school worthy of it and an essential part of that school must be a hostel which would attend to the social side

Those present passed a cordial vote of thanks for an address which the Chairman said had been really cheering on a depressing occasion

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg -Comdr W H Hastings is placed on the Retd List at his own request with the rank of Surg -Capt

The following appointments are notified Surg -Comdrs J P Shorten to *Princess Margaret* (on relief), B S Robson to *Sandhurst* (temp addl), and J C Souter to *Princess Margaret* (temp)

ROYAL ARMY MEDICAL CORPS

Col J W H Houghton, late R A M C , retires on ret pay

Maj W E C Lunn retires on ret pay and is granted the rank of Lt -Col

Capts to be Majs H A Sandiford, W D Anderton, C M Foster (Prov), H R Sheppard (Prov), and D W Beamish (Prov)

Capt D W M Mackenzie is restd to the estabt

Capt A Rodd is placed on the half-pay list on account of ill-health

Lts to be Capts W B F Orr, F T O'Meara, and T W Davidson (who remains secd)

ARMY DENTAL CORPS

Lt B Abbott to be Capt

ARMY RESERVE OF OFFICERS

Lt -Col A A Seeds, having attained the age limit of liability to recall, ceases to belong to the Res of Off

Lt A Robertson to be Capt

TERRITORIAL ARMY

Hygiene Companies —Maj J H P Fraser resigns his commn and is granted the rank of Lt -Col with permission to wear the prescribed uniform

TERRITORIAL ARMY RESERVE OF OFFICERS

Lt -Col J F Dixon, having attained the age limit, relinquishes his commn and retains his rank

Col E F Buzzard, having attained the age limit, relinquishes his commn and retains his rank

TERRITORIAL DECORATION

The King has conferred the Territorial Decoration upon Majs J L Hamilton and A Morris, and upon Capt G B Tait

ROYAL AIR FORCE

Flight Lt G R Nodwell is transferred to the Reserve, Class D 1

Flying Officer V P Ellis (Temp Lt , General List, Army, Dental Surgeon) relinquishes his temporary commission on completion of service

INDIAN MEDICAL SERVICES

Capts Bindeshwari Prasad, J M Mitchell Codanda Madiah Ganapathy, and Nariman Jamshedji Gai to be Majs

Venkatachari Srinivasan and Hari Narain Gupta to be Temp Lts

Col A A Gibbs to be Maj -Gen , vice Maj -Gen W H Ogilvie, appointed Director, Indian Medical Service Capt L K Ledger is posted as Medical Officer and ex-officio Vice-Consul, Sistan The following are granted leave Col A W R Cochrane, Inspector-General of Civil Hospitals, United Provinces, Majs R Hay and E W Og Kirwan, Civil Surgeon, Mymensingh

DEATHS IN THE SERVICES

Fleet-Surg John Bellhouse Bowden Triggs, R N (retd) who died in a nursing home at Malden, Surrey, on Feb 1st, aged 75, graduated in medicine and surgery at Aberdeen University in 1873 and obtained the M R C S Eng in the following year He served during the Zulu War of 1879 in medical charge of H M S *Active* and in the Venezuelan revolution of 1891–92 (medal and diploma from the Venezuelan Red Cross Society for his services to the wounded)

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN 29TH, 1927

Notifications —The following cases of infectious disease were notified during the week Small-pox, 532 (last week 558), scarlet fever, 1500 , diphtheria, 1030 , enteric fever 31 , pneumonia, 2618 , puerperal fever, 45 , puerperal pyrexia, 176 , cerebro spinal fever, 13 , acute poliomyelitis, 14 acute polio encephalitis, 3 , encephalitis lethargica, 26 dysentery, 11 , ophthalmia neonatorum, 108 There was no case of cholera, plague, or typhus fever notified during the week

The cases of small-pox were reported from the same counties as last week, with the addition of one case from Chester (Stockport), and one from Essex (West Ham)

Deaths —In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 50 (1) from measles, 6 (2) from scarlet fever, 101 (38 from whooping-cough, 43 (7) from diphtheria, 44 (12) from diarrhœa and enteritis under 2 years, and 725 (252) from influenza The figures in parentheses are those for London itself The influenza deaths for the last six weeks have thus been 69, 86, 173, 326, 470, and 725, while 818 is the figure notified for the week ending Feb 5th, the deaths in London being 215

INFLUENZA IN SCOTLAND

THE Scottish Board of Health states that up to Saturday last there was in most parts of Scotland no undue prevalence of influenza for the time of the year and nothing in the nature of an epidemic There was, however, a good deal of influenza of a mild catarrhal type, and in some places —Aberdeen, Greenock Falkirk, and the Lower Ward of Lanarkshire—it had increased since the previous week At Aberdeen about 3 per cent of persons visited by health visitors were found to have influenza and about 60 per cent of health insurance sickness benefit claims had reference to influenza cases In many other places there were fewer cases than in the previous week In Motherwell and Wishaw the type was reported to be becoming milder, and the interesting distinction previously reported by the medical officer of health that the symptoms of the Wishaw cases were mainly gastric and those of the Motherwell cases catarrhal was becoming less marked

ROYAL WEST SUSSEX HOSPITAL —A centenary fund has been inaugurated, and plans involving an outlay of £30,069 have been agreed upon for improvements Founded in 1784 as a dispensary for the relief of the sick poor, this institution became a hospital in 1703 and was established in 1826 as the Chichester Infirmary As it met the increasing needs of the district it came to be known as the West Sussex East Hants, and Chichester General Infirmary and Dispensary, and afterwards the word "infirmary" was deleted and "hospital" substituted King Edward frequently visited the hospital on his way from Goodwood to Cowes, and in 1912–13 the hospital was entirely renovated and reconstructed as a lasting memorial to him When on August 2nd, 1913, King George reopened the building, he acceded to the request that it should be known as the Royal West Sussex Hospital Nearly 1200 in-patients and three times that number of out-patients are nowadays treated yearly At the annual meeting in April, 1926, a contributory scheme was launched, and although it did not come into operation until November the number of contributors by the end of the year was over 5300, representing an income of over £2000 a year The success of this scheme seems thus assured, and already there has been a very encouraging response to the centenary appeal The new improvements to the hospital are to be associated with the name of the late Dr David Ewart

Correspondence.

"Audi alteram partem."

DEATHS UNDER ANÆSTHETICS

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 22nd Dr. A. G. Levy adopts methods of deductive reasoning that cannot be passed by without comment. He assumes that a certain anæsthetic (ether) is safe: and this is reasonable enough, for it is commonly reputed to be so, and Dr. Levy himself has in the past done much valuable work on the dangers of its principal competitor. He collects from the Registrar-General the mortality due to its use and the mortality due to other anæsthetics, and finds that the statistical facts thus obtained do not bear out the theory of the almost fool-proof innocuousness of ether.

What, then, is his next step? To revise or reconsider the theory until it fits the facts? No. With sublime simplicity he alters the facts to fit the theory. The total yearly number of anæsthetic deaths has risen from 276 in 1911 to 446 in 1923 a rise of about 61 per cent. Part of this rise is accounted for by the ever-increasing number of operations. (The author estimates from the theatre statistics of a large hospital that this increase during the same period amounts to 13 per cent.) The casualty list yields the following information: chloroform deaths dropped from 66 per cent. to 22 per cent. Mixture deaths rose from 22 per cent. to 37 per cent. Ether deaths rose from 9 per cent to 32 per cent —this in spite of the increased popularity of the open ether method. In 1923, 123 deaths occurred from the use of ether alone; their records were examined and they were found to be mainly routine cases. Many of them were trivial, and there was no undue preponderance of excessively severe operations which might fictitiously swell the total.

But Dr. Levy's explanation of the rise in the number of deaths due to ether is that they are not in fact deaths due to ether at all. He states that, owing to the slowness of open ether induction, chloroform or a mixture is often used at first, followed by open ether. The administration is described as ether, mention of the preceding and possibly brief use of chloroform being omitted. Very likely this is so in some cases, but there is no proof that all or even many of the figures are inaccurate. As far as I can judge of the accuracy of the certification, the fact that the highest percentage of deaths is certified as due to mixtures inclines me to the belief that when a mixture is used the fact is revealed. The conclusion drawn at the end of the article is that the reports of the Registrar-General prove that diluted chloroform or a small amount of chloroform at the commencement of the induction is dangerous.

It may be so, but I cannot see how these figures, showing 32 per cent of ether deaths to 22 per cent of chloroform deaths prove it. It would surely be more rational, on finding facts that conflict with a theory, to re-examine the theory with a critical eye. Points worthy of investigation are (*a*) is ether so intrinsically innocuous as it is thought to be? (*b*) What is the effect of faulty or unskilled administration? (*c*) What is the effect of its use in unsuitable cases, under the belief that the (generally) safest drug is always the safest?

I have been much interested in this subject for several years, during which the impression has been gradually gaining ground in my mind that ether is more toxic and even more lethal than is usually thought. In order to test this hypothesis I have investigated a series of 30 000 cases an analysis of which is at present in the hands of the publishers. The results as I interpret them, show very clearly that by far the most important factor in the mortality-rate was the care taken in the administration. 10,000 cases from one hospital were compared with 20 000 from another. One hospital used chloroform freely (in 27 per cent of cases), even in closed inhalers, but insisted on skilled administration on all occasions The other hospital was chloroformophobic and nearly 95 per cent. of its patients received ether alone. Relying on the belief that ether is an innocuous drug anæsthetics were administered in many cases by unsupervised dressers The ether enthusiasts had a much higher mortality, both immediate and remote, than the careful chloroformophils, their deaths on the table being double and their remote mortality 23 times as great

While not attempting to attack the impregnable doctrine that ether is in general safer than chloroform, I do put forward the view that ether in unskilled hands is never fool-proof and may sometimes be dangerous. Personally, I would far rather have chloroform administered to me by an expert than ether by a novice.

I am, Sir, yours faithfully,

W. STANLEY SYKES.

Morley, near Leeds Feb 7th, 1927

THE FINGER-PRINTS OF IDENTICAL TWINS.

To the Editor of THE LANCET.

SIR,—In an annotation last week you referred to the close similarity, without actual identity of the finger-prints in a pair of identical male twins described by Dr. G. P. Crowden in the Guy's Hospital Reports. I went into this very point most carefully in a clinical lecture on Congenital Defects of the Long Bones, delivered in 1925 at Manchester University and printed in the *Journal of Bone and Joint Surgery* for July, 1925 It happened the identical twins there described were so similar that they reproduced a deformity—namely, absence of the tibia, shown by Hoffa's observations to be exceedingly rare. I therefore regarded my twins as especially similar—perhaps the most identical ever produced Their finger-prints were taken as 'probably identical,' but the Scotland Yard Department quickly found differences and established clearly their argument that no two impressions are alike. I am Sir, yours faithfully,

Manchester, Feb. 7th, 1927 ROBERT OLLERENSHAW.

IS THE PRESENT EPIDEMIC OF INFLUENZA DUE TO A STREPTOCOCCUS?

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 29th Drs. David and Robert Thomson have drawn attention to what they term an unusual streptococcus of a highly pleomorphic character. This organism was isolated from a case of apparently true influenza, and they suggest that the attack was caused by it May I point out that this pleomorphous streptococcus is not by any means a novelty? During the pandemic period of 1918-19 I was able to isolate this interesting organism from practically every case examined by me in Reading. The brothers Thomson will find a brief description of the streptococcus in THE LANCET for 1918 (vol. ii., p 722) and for 1919 (vol. i, p 280). If they care, further, to refer to my article on the Bacteriology of Influenza in Dr. F G. Crookshank's 'Influenza: Essays by Several Authors" (published by Messrs. Heinemann), they will find there references to papers from the pen of other bacteriologists dealing with an apparently similar organism. Whether it is the chief organismal factor in the causation of influenza is another matter. It may have no more claim to be so regarded than has Pfeiffer's bacillus, wrongly called the *Bacillus influenzæ*.—I am, Sir, yours faithfully,

ROBERT DONALDSON

St. George's Hospital Feb 2nd, 1927

To the Editor of THE LANCET.

SIR,—Drs. David and Robert Thomson state that they have obtained cultures of a streptococcus from one of themselves who was suffering from influenza. In this connexion it may be helpful to note that in liveliest interest in all that concerned the life of the town, became justice of the peace for the borough and county, a member of the Tees Conservancy Commission, served on insurance and education committees, and presided over the Committee of Selection for Magistrates

In 1873 Dr Hedley married May, elder daughter of Mr Edward Williams, then manager of Messrs Bolckow, Vaughan and Co, and with his wife's help he started soon after a nursing service for the workmen in the employment of her family, which developed later into the nursing association serving the town and district, one of the first of its kind in the country To the end of his life Dr Hedley retained the power of absorbing new ideas and applying them to practice, he was far in advance of his time in such matters as surgical cleanliness and the open-air treatment of disease, and to the end he kept in touch with the new medical knowledge of the time His wife predeceased him by two years Of his eight children, all of whom are living, two sons are in the medical profession and his two daughters married medical men

His funeral service was attended by the principal citizens of the county borough for which he had done so much, and which recognised that with his character and ability he might reasonably have aspired to a more imposing reputation on a wider stage. But he was content to begin and carry through to the end innumerable tasks which were of real service to the people among whom he lived

FRANCIS SORELL ARNOLD, M B, B CH OXF

WE regret to announce the death on Feb 5th, at Painswick, Glos, of Dr F S Arnold, after a short illness He was born in Dublin, grandson of Thomas Arnold, the famous Rugby headmaster, son of Thomas Arnold, the author of the well-known Manual of English Literature, and brother of Mrs Humphry Ward He was educated at Clifton, entering Christchurch, Oxford, with a junior studentship in 1879, and graduating there in natural science four years later He took his medical degrees in 1887, after spending four years at St Bartholomew's Hospital, and was for a time house surgeon at the Radcliffe Infirmary before taking up general practice For a period of seven years he was medical superintendent to the Hailey Open-air Sanatorium, utilising his experience there for a book on the "Modern Therapeutics of Pulmonary Phthisis" At Oxford he developed the polyglot capacity which stood him in good stead throughout his life, for he translated many foreign classics, and was equally at home with the Dutch, German, Spanish, and Italian languages The list of authors who owed him their introduction to English medicine is a long one, and includes the names of Bing, Schlesinger and Guelpa In past years THE LANCET has often been grateful to him for service of this kind More recently his professional life was spent at Berkhamsted, Bovingdon (Herts), and Painswick, where he was medical officer to a District Union and to the Guide Orphanage He married Annie, daughter of the late T R Wilkinson, who survives him By his death the medical profession loses a cultured member of many-sided interests

ROBERT WILLIAM FELKIN M D MARBURG L R C P, F R S EDIN

WE regret to record the death of Dr Robert William Felkin, a well-known student of tropical disease which occurred at Whare Ra, near Hawke's Bay New Zealand, on Dec 28th last Felkin was a Nottingham man and was educated at Wolverhampton He became interested at an early age from the religious point of view in the problems of anthropology and geography of disease, probably because he met Livingstone during childhood, and was much impressed by the career of that great medical missionary He received his medical education at Edinburgh, where he took the double qualification of the Royal Colleges He later obtained the medical degree of the University of Marburg, and shortly afterwards went with Stanley's expedition for the relief of Emin Pasha The life of that German traveller, physician and administrator as written by G Schneitzer, was introduced to English readers by Felkin, and it was easy to see that Africa possessed already a strong hold on his imagination He proceeded to Uganda, where he filled for some time the anxious post of medical advisor to a native king but finding little opening there for either his talents or his aspirations, he returned to England and worked at tropical diseases, the importance of whose study had now become manifest, though most of the modern pathology was still in the making Between 1890 and 1900 he made various visits to Africa the results of which he published in a work entitled the "Geographical Distribution of Tropical Disease," and he made many scientific communications to medical journals During this period he was an occasional though fairly frequent correspondent of THE LANCET both advising us when he was at home and communicating with us when he was abroad, but the greater part of his signed writing will be found in the *Balneological and Climatological Journal* For a period he lectured on tropical diseases in Edinburgh, and acted in a consulting capacity to the British Tropical Africa Company His health had been severely tried by his extensive travels, and after a definite breakdown he decided to reside permanently in New Zealand, where he passed the last 12 years of his life

Dr Felkin, though his name will always be associated with tropical disease, was a man of wide interests and knowledge He was a considerable anthropologist and a member of several foreign academies, he wrote on such various subjects as monism, heredity, and psychotherapeutics, and contributed papers to German and English publications on popular errors in medicine on folk-lore, and on spa treatment

LLEWELLYN POWELL PHILLIPS, M D CAMB, F R C S ENG, F R C P LOND

Dr Llewellyn Powell Phillips, who died recently in Cairo at the age of 55, was the son of a Cardigan physician, and was educated at Epsom and Caius College, Cambridge He obtained first-class honours in the natural science tripos of 1892 and went on to St Bartholomew's Hospital, graduating in medicine at Cambridge in 1895 and taking the F R C S Eng in 1897 After filling various residential posts at St Bartholomew's he proceeded to Egypt as resident surgical officer at the Kasr el Aini Hospital with which institution he was connected for 24 years as professor of clinical medicine in the school and senior physician to the hospital, his retirement from government service only taking place two years ago In 1909 he was elected F R C P

Dr Phillips was well known to all members of the medical profession whose business, or, indeed, whose pleasure, brought them into any relation with Egypt and especially with Cairo He had a large practice both among Europeans and natives for his energetic work done during a cholera epidemic in 1901 had secured for him the admiration of all the community During the war he acted as commandant of a British Red Cross hospital at Giza, where his wife acted as matron, and for his services he received honours both in the Medjidieh and Nile Orders

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THE LATE DR A C ELLIOTT —The death is reported of Dr Arthur Campbell Elliott who had practised at St Annes-on-the-Sea Lancashire for 32 years Dr Elliott who was 61 years of age, graduated at the University of Edinburgh in 1891 and served as house surgeon at the Preston Royal Infirmary On entering general practice he became police surgeon for the St Anne's area and was medical officer to convalescent homes in the district There was a large gathering at the funeral on Jan 20th cancer cells in a few minutes by applying an appropriate antiserum, while controls in normal serum migrate actively for 2–3 weeks This is regarded as evidence that the antiserum tested was toxic —T L

TREATMENT OF TUBERCULOSIS BY MR SPAHLINGER'S METHODS

We have received a further letter from Mr Spahlinger, in which he repeats that he did not allude to "serum" when certain cases were under treatment at St George's Hospital, and states that he did not make the claims attributed to him for rapid results He says the cases treated outside the hospital were visited with him by Dr Linnell and Dr Hunt, but that they were not Dr Latham's cases, although they were seen by two of the staff of St George's Hospital on behalf of Dr Latham Mr Spahlinger acknowledges the amount of space already taken up by the controversy with gratitude and disclaims a desire for further polemics Nothing in his letter alters the position as set out by the correspondence which appeared in our columns on Jan 29th, 1927

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

OPENING OF SESSION—KING'S SPEECH

THE new session of Parliament was opened by the King in State on Tuesday, Feb 8th. In the course of the Speech from the Throne it was stated among the measures to be dealt with during the coming session would be a Bill to amend the law relating to industrial disputes , a Bill for the amendment of the law relating to leasehold premises, so as to secure to an outgoing tenant compensation for the loss of his good-will and unexhausted improvements , and Bills dealing with questions affecting agriculture and insurance against unemployment

HOUSE OF COMMONS.

TUESDAY, FEB 8TH

Poor-Law Reform and the Factories Bill Postponed

Speaking in the debate on the Address in reply to the Speech from the Throne, Mr BALDWIN, Prime Minister, said he thought that when the Speech was examined the House would see that there was a great deal of useful work that they might accomplish in the time at their disposal The Government had only put into the Speech such legislation as they thought there was a reasonable prospect of carrying by August 1st One measure of which the House had heard a good deal—namely, that dealing with Poor-law reform—was so large and comprehensive that it would have been impossible to take it this session unless they had contemplated a long autumn session. It was a measure which must be mixed up with very important and intricate questions of local finance It was very important that such questions should not come before the House until they had been examined from every point of view, and some opportunity had been taken of discussing them with local authorities He hoped that it might be possible when the new Session started in November to move ahead with this important piece of work The same was true of the Factories Bill

MANCHESTER ROYAL INFIRMARY —Plans have been approved for the erection in York-place of the new home for nurses and it is hoped that building will begin in a few months The total sum received for this purpose is £58,401 The accommodation required in the new home shows that a total staff of 379 has to be housed, including 85 domestic servants The number of cases treated in the accident room increased from 19,491 in 1922 to 26,347 in 1925, and 27,677 in 1926, the daily average of new casualty cases being just over 75 The ordinary income was £93,163, and the total ordinary expenditure £121,365 The deficits for the past three years have been—in 1924, £24,147 , in 1925, £22,740 , and in 1926, £18,082 The total number of patients treated rose from 57,499 in 1925, to 59,232 in 1926 There were 9657 operations performed Owing to the coal dispute, the extra expenditure on coal during the year was £5000

Medical News.

UNIVERSITY OF OXFORD —At a congregation held on Jan 27th the following degrees were conferred —

Bachelor of Medicine —William Frederick Howson Ray, Richard Christie Hodges, Robert Illingworth, Charles Webley Hope Gill, Thomas Mortimer Ling, George Eric Macdonald, Edward Mandeville Wright, William Dunstan Boileau Read, Charles Leo Harding, John G A. Davel, Arthur Harold Gale, Leslie Owen Frank Fysh, Robert Gordon MacGregor, Reginald Arthur Haythornthwaite, and Rosaleen Louise Graves

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND —Licences to practise have been conferred upon 46 candidates (9 women and 37 men) who have completed the final examination in medicine, surgery, and midwifery of the Conjoint Board and have complied with the by-laws of the Colleges This list is supplementary to that published in THE LANCET (Feb 5th, p 315) The following are the names and medical schools of the successful candidates —

Gertrude Alphonso, Calcutta and Royal Free R Andrews, London , N Attygalle, Ceylon and Middlesex , R Bandyopadhyay, Calcutta and St Thomas's , H Berliner and Augusta J Blumenthal, Univ Coll , H J Burrows, Cambridge and St Bart 's , R W Butler, Cambridge and St Thomas's , Mildred Carpenter, Univ Coll , A Carr, Guy's B Chaudhuri, Bombay and Middlesex , Pamela M G Churchill, King's Coll , F H N Cruchley, London , A S El-Katib, Cairo and St Thomas's , V Freeman, Univ Coll , H J Gubbin St Bart 's V F Hall, King's Coll , E O Harris Middlesex , J W O Holmes, St Bart 's, S G Irlam London , Freda C Kelly, Univ Coll , A E Kingston Middlesex , J S Lewis, St Mary's , E M Lourie, Univ Coll , R W L May, Cambridge and St Thomas's , Helen E Mayfield, St Mary's J L Newman Cambridge and King's Coll F G Parker Oxford and Guy's , Muriel V Paton, Royal Free , G C Pether, Middlesex , R K Pillay, Madras and London E N Price St Mary's , L J Rae, Cambridge and London , R H Rattray, Charing Cross, E R Rees St Bart 's , W Rosenberg Witwatersrand and Guy's , R Rutherford King's Coll , M Schwartz, Cardiff and Univ Coll , Helen D S C Scott, Royal Free and Charing Cross S Segal, Oxford and Westminster , M Shaw, Guy's , E S Vergette, St Bart 's D P Wailling, Bengal and St Thomas's L A F Wiles St Thomas's Marian E Williams, Royal Free , and R M Williams, Guy's

The following candidates were approved in the undermentioned subjects, but are not eligible for diplomas —

Medicine —Edna E Adams, Birmingham , Florence M. Allen, King's Coll H W Allen and C J Bashall St Thomas's , Constance M H Bishop, Charing Cross , W J Branday, Birmingham I G Briggs, London C F Brockington, Guy's , W G Brookes, Liverpool W A. Busby, London , E N Butler, King's Coll Emily E ,Cass, St Mary's A Chaudhuri, St Bart 's , Mary C E Constantine, Royal Free A D W Cooke, St Mary's , W. V Cruden and R Cunningham, St Bart 's Constance M. Cusden, Charing Cross , W N Dickenson St Thomas's H Doyle, St Mary's , G A Eason, St Bart 's , C W Evans, St Mary's , Isabella Forshall, Royal Free , H C Geldard, Middlesex J M Graham London M K Gyi, Guy's W R E Harrison, St Bart 's , G L M Inkster, Middlesex , Ansa H Jackson Royal Free , Caroline M Kingsmill St Mary's , Winifred A Ladds, Royal Free , O I Lewis, London , Margaret I Little St Mary's Janet Lochore, Edinburgh , R. C Mahajan and E T Mankabadi, London S P Meadows, Liverpool , J K Moore, Guy's , V V Morgan, Middlesex F B Mulvany, London , J H Mulvany, King's Coll , A B Nutt, Sheffield , R Oddie, St Thomas's , Ethel E M. Ogilvie, Royal Free , R L Osmaston, Univ Coll , M D Patel, Middlesex , Dulcie J Peake, Royal Free , Margaret E Peaker and Gwynedd M Phillips King's Coll , Mervyn W Platel, St Bart.'s , E A. Pye and W H Roberts, St George's Mona M Russell Cruise, St Mary's , W H Scriven and D W Stuart, King's Coll , Dorothy Taylor, St Mary's Doris H Tomes, Westminster , W E Underwood, St Bart 's and A D Versteegh, St Thomas's

Surgery —H W Allen, St Thomas's, Dorothy Arning and H Arstall, Manchester H E C Aslett, St Mary's , G. H Barendt, St Bart 's J F L Barnes, St Thomas's A Batty, Middlesex , Charlotte Belinky-Raginsky, Charing Cross V C Benson, Guy's , Joan H Blackledge and Eleanor D Blunt, Royal Free , J H Boultbee, Liverpool , E W. Bowskill, Manchester , Muriel Brighton, Royal Free W G Brookes, Liverpool , Helen R B Buck, Royal Free , E Burton London , E N Butler, King's Coll , M S Chafey, Charing Cross A. D Charters St Thomas's E Clayton-Jones Guy's , M. Cohen, Middlesex C B Crofts and A T Croucher, St Mary's S F L Dahne and C S Davies, St Bart 's , R S de Bruyn Guy's , C I D'Netto and C W L Dodd London Elsie M Douglas Univ Coll , Margaret R Dunlop, Royal Free Jessie Edwards Charing Cross , Muriel M. Edwards, Manchester , M R Ernst, St Bart 's , R V Farr, Birmingham , J C Fast Guy's , A A. H Fyzee, Univ Coll , R J S Garrow, Leeds , R C D Gifford, Birmingham , F H Gillett St Thomas's , J L Glover, Guy's , A. L Gunn Cardiff , Bridget S P Gurney, Royal Free D G Hamilton , St Thomas's H Hannesson. London , B Haring, Manchester ;

1919, on page 68 of his monograph entitled "Die Spanische Grippe und ihre Bekampfung" (published by E. Bircher, Berne), Dr Carl Spengler, of Davos, and formerly of the Koch Institute, described a streptococcus form of his "grippe bacillus," cultures of which he obtained from cases of influenza Drawings of this streptococcus are shown in the plates at the end of Spengler's monograph

I am, Sir, yours faithfully,

WALTER H. FEARIS,

Late Bacteriologist to the City of Cardiff and County of Glamorgan Public Health Laboratory

Brightlingsea, Feb 2nd, 1927

THE ADRENAL BODIES AND THE SPLANCHNIC NERVE.

To the Editor of THE LANCET.

SIR,—It has been shown by Pearlman and Vincent, Sheen and Vincent and Vincent and Wright that, when the peripheral end of the splanchnic nerve (in an animal under ether anæsthesia) is stimulated, the blood-pressure curve obtained is not a simple one. The initial rise of blood pressure is followed by a "dip" succeeded by a return to a level exceeding the initial height of the blood pressure, which height is maintained so long as stimulation is continued This dip does not recur after elimination of the adrenal bodies

MacDonald and Schlapp have recently demonstrated that the well-known depressor effect of small doses of adrenin is not due to any reversal of the action of the drug in such doses, but solely to a pharmaco-dynamical influence of the ether employed as anæsthetic This conclusion, if confirmed, removes at once one of the strongest arguments (frequently used by one of us) against the so-called "tonic" theory of adrenal activity This is obviously a matter of great clinical and pathological importance It is, therefore, satisfactory to record that we have been able fully to confirm the observations of MacDonald and Schlapp

It was believed by the writers above-mentioned that the "dip" in the splanchnic blood pressure curve is due to the pouring out of small quantities of adrenin causing a temporary depression during the course of a vaso-constrictor elevation of blood pressure The interesting discovery of MacDonald and Schlapp has rendered this hypothesis more secure We find that the "dip" does not occur in an animal entirely free of anæsthetic It is, then, a phenomenon dependent upon both adrenal secretion and the pharmaco-dynamical action of ether (and possibly other anæsthetics also) This has been confirmed in a large number of experiments upon pithed and decerebrate cats, and the uniform result has been that, when adrenin injected intravenously caused a vaso-dilatation, then and only then could we obtain the dip in the splanchnic curve

We hope shortly to publish further details

We are, Sir, yours faithfully,

SWALE VINCENT,
F R CURTIS

Physiological Department, Middlesex Hospital Medical School, Feb 8th, 1927

IMMUNITY TO IMPLANTED TUMOURS

To the Editor of THE LANCET

SIR,—Since my previous letter, Dr Lumsden has kindly shown me his slides There is now no doubt in my mind that he is dealing with carcinoma cells In my opinion, the reason why they do not exhibit the usual appearance of growing in continuous sheets of cells is because they are not "healthy" These are more or less degenerated as evidenced by fatty degeneration of their cytoplasm and the beginning of nuclear pyknosis Dr Lumsden maintains that such cells will continue to exhibit evidence of vitality (for instance, movement) for some weeks, but when exposed to certain antisera degeneration proceeds at a greatly increased speed In contrast to this "healthy" normal cells such as fibroblasts or kidney cells do not undergo this rapid degeneration Though it may be fair to compare degenerating carcinoma cells with each other, it seems doubtful whether this can be done with advantage when degenerating carcinoma cells are contrasted with healthy cells

I am, Sir, yours faithfully,

J C MOTTRAM.

The Radium Institute, Portland-place, London, W 1, Feb 2nd, 1927

To the Editor of THE LANCET

SIR,—In reply to Dr Drew's letter the migrating cells mentioned in my letter in your issue of Jan 29th as having given rise to cancer when inoculated into mice, were collected after removal of the fragment from which they emanated They were injected alone in a small quantity of serum The experiment is a delicate one, and it is obvious that the small number of cells inoculated after considerable interference should not be expected to cause a progressive tumour in every case In three out of ten mice so inoculated a progressive and typical M63 tumour was produced, and this to my mind is alone sufficient proof that these migrating cells are malignant I and others who have worked much with my medium and methods have no doubt at all on the point, and I think that only unfamiliarity with the results obtained could be the basis of the doubts existing in the minds of Dr Mottram and Dr Drew. A few further points confirmatory of my views may be worth setting down:—

1 Not infrequently both cancer cells and unmistakable stroma cells migrate out of a fragment of M63 Application of antihuman cancer serum kills every cancer cell and causes no damage to the stroma cells

2. When a tiny fragment consisting of, say, 30 or 40 cancer cells is watched under the microscope these cells can be observed to wander out, and have exactly the same characters as those migrating out of a larger fragment

3 Where fibroblasts from the heart or salivary gland or epithelium from the kidney are intermingled with these cancer cells, the latter only are killed by an antimalignant serum—e g, from a rat hyperimmunised to J R S See Figs 3 and 4, in my paper in THE LANCET, 1926, ii, p 112

4 Fragments of M63 grown in normal serum invariably cause cancer when inoculated into mice Fragments to which anti-M63 serum has been applied do not cause cancer

5 The results obtained in the treatment of tumours in the living animal are confirmatory of the views I maintain, and are the fruit thereof

I will gladly show Drs Mottram and Drew actual specimens which I hope may convince them, but their repeating my experiments is the only certain means of doing so In the belief that truth emerges more readily from experimental observation than from correspondence, I propose to continue the former and not the latter

I am, Sir, yours faithfully,

THOMAS LUMSDEN

Lister Institute of Preventive Medicine, London, S W, Feb 5th, 1927

PS —Since I wrote the above, with Miss A C Kohn-Speyer I showed some specimens to tissue culture-specialists and others at the meeting of the Biochemical Society on Feb 7th All were, I think, convinced of the malignant nature of the cells migrating from my cultures of mouse cancer I am glad to state that after examining the specimens Dr Mottram, with a candour worthy of his reputation, admitted the malignant nature of these cells, although I think he was not so convinced as, by long experience, I am, of their activity and power of resistance Dr Drew, though invited, was unable to be present In vitro tests give useful indications, but the conditions are necessarily abnormal and only results obtained in living animals are entirely convincing to my mind My method consists in killing these cultured

CONTINENTAL MEDICAL TOURS —The *Bruxelles Médical* has arranged a number of tours to Morocco and to the Eastern Mediterranean, in which doctors and their families are invited to take part at reduced rates The dates of starting are from March 12th onwards, and full particulars may be had from the Section des Voyages de *Bruxelles Médical*, 29 Boulevard Adolphe Max, Brussels

CAMBRIDGE GRADUATES' MEDICAL CLUB —The annual dinner of the Club will be held at the Langham Hotel on Tuesday, March 1st, at 7 15 for 7 30 P M Sir Humphry Rolleston President of the Club, will take the chair All members of the Club are invited to be present, and all Cambridge medical men who are graduates of the University are eligible for membership Application forms can be obtained from the honorary secretaries, Mr R M Vick, of 113, Harley-street, London, W 1, and Dr F G Chandler, of 1, Park-square-west, Portland-place, N W 1

TERRITORIAL ARMY MEDICAL OFFICERS' ASSOCIATION —The annual dinner of the Association will be held on Thursday, Feb 24th, at 7 30 for 8 P M , in the Cafe Royal 68, Regent-street London W 1 The Association has been formed for consideration of all matters of interest or benefit to the Territorial medical officer The dinner tickets are 12*s* 6*d* (without wine) and can be obtained from the hon secretary, Lieut -Colonel L A Harwood, at 37, Russell-square, London, W C 1

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH —A quarterly meeting of the College was held on Feb 1st, Prof G M Robertson, the President, in the chair Dr James Richan Drever and Dr Alan Leonard Smith Tuke were introduced and took their seats as Fellows of the College Dr William Bell was elected a Fellow of the College, and the following were elected Members . Robert Finlay Aitken, Sittampalam Thiagarajah, Alexander Murray Affleck, James Kirkwood Slater, and Prag Nath Kapur

HOSPITAL SATURDAY AND SUNDAY FUNDS —The delegates of the London Hospital Saturday Fund have just distributed £69,000, a reduction of about £2400 on last year The falling off is accounted for by the industrial depression The general hospitals, 47 in number, received £22,790, and 79 special hospitals £21,808 Altogether 235 institutions benefited —The same influences account for a falling off of nearly £1000 in the produce of Birmingham Hospital Sunday Fund, which is more than accounted for by smaller church collections , the total was £8782 The administrative expenses have fallen from 9 6 in 1923 to 6 2 in 1926

AN OVERCROWDED UNION INFIRMARY —Dr J. D. Giles, the medical superintendent, has reported to the Salford Board of Guardians upon the overcrowding of Hope Union Infirmary In addition to the congestion of the wards, a large proportion of the day-rooms have had to be used for sleeping accommodation for sick patients, while others have been sleeping on floors and tables in almost every ward There are 1014 patients in a hospital which was built to accommodate 850 A committee has been appointed to deal with the matter

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —On Thursday, Feb 17th, at 5 P M , at the rooms of the Medical Society of London, 11, Chandos-street, W 1, Dr Wilfred Harris will lecture on Trigeminal Neuralgia On Feb 14th, at 2 P M., Mr Harold Kisch will hold a demonstration in clinical surgery at the Central London Throat, Nose and Ear Hospital those intending to be present are asked to notify the hospital secretary (Museum 1539) On Feb 18th, at 5 P M , Mr G Viner will give a clinical demonstration on Ocular Palsies at the Royal Westminster Hospital The lecture and both demonstrations will be open to members of the medical profession without fee The following courses are in progress this month at the Lock Hospital, in Venereal Diseases , at the Paddington Green and Victoria Hospitals, in Children's Diseases , at St John's Hospital, in Dermatology , and at the National Hospital, Queen-square, in Neurology Details of any of these courses can be obtained from the Fellowship The subjects of the Special Courses in March will include Diseases of the Chest, Brompton Hospital, all day for one week, fee £3 3*s* Diseases of Children, Queen's Hospital, all day for two weeks fee £3 3*s* , Ophthalmology, Royal Eye Hospital, afternoons for two weeks, fee £1 1*s* , Gynæcology, Chelsea Hospital, mornings and/or afternoons for two weeks, fee £5 5*s* and Orthopædics, Royal National Orthopædic Hospital, all day for two weeks, fee £2 2*s* There will also be a practitioner's course at the London Temperance Hospital in the late afternoons for two weeks (fee £1 1*s*) Practical courses in Anæsthetics can be arranged, and also courses in Obstetrics , arrangements are made for clinical assistants Syllabuses of the Special and General Courses and copies of the *Post-Graduate Medical Journal* may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1.

MANCHESTER CITY COUNCIL AND VACCINATION —The city council at its meeting on Feb 2nd, by 73 votes to 31, supported a resolution of its public health committee, urging upon the Ministry of Health the importance of amending the Vaccination Acts so as to make vaccination "more general and efficient " The resolution supported the resolution passed by a conference of medical officers of health in Durham urging the Ministry to amend these Acts and to make vaccination more general and efficient as vaccination afforded "the quickest, most scientific, and most economic means of preventing and arresting outbreaks of small-pox "

BIRMINGHAM MATERNITY HOSPITAL —Little more than a year ago there was opened debt-free a new block of this hospital which increased the number of beds from 32 to 67 and provided much collateral accommodation The old building was then overhauled and a new operating theatre and a pathological laboratory were built The result of these necessary enterprises is a heavy deficit The hospital is an institution of primary importance to Birmingham It treats in-patients (1237 last year) and out-patients (2446 last year) provides qualified resident midwives in seven districts of the city who attend patients in their own homes, and is a training school for midwives and the medical students of the University

JOINT TUBERCULOSIS COUNCIL —At a meeting of the Council held at 1, Upper Montague-street, London, W C , on Jan 15th Sir Henry Gauvain was elected chairman for 1927 Dr Lissant Cox vice-chairman, Dr E Ward, Secretary, and Dr James Watt, Treasurer A committee was appointed "to consider how the tuberculosis service may be rendered more efficient , whether, with this object, evidence shall be given before the Royal Commission on Local Government , and, if so, what points should be brought forward " Fourteen years' experience of the working of tuberculosis schemes has brought some knowledge of their possibilities as well as their limitations, and the committee represents all the interests concerned Recent statistical returns for which the Ministry of Health has asked are likely to lead to modifications in administration, and the time seemed appropriate for tuberculosis workers to overhaul their methods On behalf of the Research Committee Dr S R Gloyne presented a report on Disinfection Dr Lissant Cox reported that replies were coming in to the 3800 circulars issued on "The Fate of Children in Tuberculous Households" Dr W Brand outlined the post-graduate courses proposed for the present year one at Copenhagen, one in London on non-pulmonary tuberculosis, at which light treatment would be dealt with, besides artificial pneumothorax, the interpretation of X ray plates, and other modern aids to diagnosis and treatment The Council meets next on Saturday, May 21st, at 10 A M

Medical Diary.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1 Wimpole street, W
MONDAY Feb 14th —5 P M , WAR Squadron-Leader P M Keane Service Architecture and the Requirements of Accommodation in Tropical and Subtropical Countries
TUESDAY —5 30 P.M General Meeting of Fellows Ballot for Election to the Fellowship
8 30 P M PATHOLOGY
H J Parish Unusual Forms of the Diphtheria Bacillus J Henderson Smith Recent Work on the Virus Diseases of Plants Demonstration S C Dyke Papilloma of the Œsophagus
WEDNESDAY —5 P M , HISTORY OF MEDICINE Prof J F Dobson Erasistratus Mr W R Dawson Contribution to the History of Mummification (postponed from Jan 19th) Dr Charles Singer An Example of the Egyptian God Bes exhibiting Symptoms of Spina Bifida
THURSDAY —5 P M DERMATOLOGY (Cases at 4 P M)
FRIDAY —8 P M , OBSTETRICS AND GYNÆCOLOGY
Specimens
Dr S Gordon Luker 1 Fibromyoma of Uterus Rupture of Capsule, with Protrusion of part of the Tumour, with Secondary Necrosis 2 Fibromyoma showing a small area of Commencing Sarcoma 3 A case of Ovarian Pregnancy Miss Alice Bloomfield 1 A case of Patent Wolffian or Gartner's Duct 2 A case of Cyst occupying Utero vesical Space associated with possible Repeated Rupture
Paper
Dr Arthur Crook Necrosis of the Cortex of the Kidney after Labour
8 30 P M ELECTRO THERAPEUTICS
Paper
Prof Franz M Groedel (Bad Nauheim) Cardiovascular Syphilis—an X Ray Study
MEDICINE Members of this Section are specially invited to attend this Meeting

A H B Heeson, Guy's, J E Heggart, Middlesex, G B M Heggs, St Mary's, Kathleen Heyes, Royal Free, H Hillaby, St Bart.'s, Janet I Hoare, Royal Free, W A C Hortor, Middlesex, T I Hughes, Bristol, R E Isaac, Cardiff, H M Jaques, Middlesex, Margaret E Jones, St Mary's, S Kaul and N A King, St Bart's, H J Krichefski and Nellie I Lanckenau, Univ Coll, O L Lander, London, A H Lankester, St Thomas's, L G Llewellyn, Middlesex, P H Loretz, Guy's, Florence Louis, Royal Free, F Mansour, Charing Cross, H E Martin, Manchester, T E Matthews, St Mary's, Mary M Moller, Royal Free, T W Morgan, St Thomas's, V V Morgan, Middlesex, Barbara E M Morris, St Mary's, J. H Mulvany, King's Coll, Helen E M Newman, Royal Free, R Newton, Manchester, T St M Morris, London, R E Norrish, St Bart's, R O'Meara, Birmingham, W Panes, Cardiff, T Pearse, Liverpool E A Pye, St George's, A Rabinowitz, Guy's, M Ragheb, Middlesex, G W Rake, Guy's W Ralston, London, B R R R Reddy, Durham, Norah Regan, Manchester, R I Richards, St Bart's, Muriel Rippin Univ Coll W H Roberts, St George's, B Rosenzvit, Middlesex, S F Russell, St Bart's, J C Saldanha, Univ Coll, R Saran, Calcutta, V H Sarland, Birmingham, H Shenouda, Manchester, M R Sinclair, St Bart's, N H Skelton-Browne, Guy's, B Spencer, St Thomas's, R J Steeds, Univ Coll, G R Shipley Stewart, Guy's, D D Stidston, St Mary's, H A Tracey, St Bart's, H M Turnbull, Charing Cross, C W Walker, St Thomas's, E Ward, Manchester, Maeve Whelen, Royal Free, G D D Wijesekere, Ceylon L N T Williams, Liverpool, L D Williams and M G Williams, Cardiff, M Yankelovitch, Middlesex, and Margaret I Yeatman, Charing Cross

Midwifery —M E Albury, St Thomas's, Joan Anderson, Manchester, Dorothy G Angus, Royal Free, B A J Arthure, Charing Cross, J H Attwood, St Bart's J F L Barnes and H Bell, St Thomas's, J F Bell, Liverpool, T G Benjamin, Guy's, F W Besley and L Blackstone, London, J H Boultbee, Liverpool, E E Bowen, Middlesex, R V Bradlaw, M T Brockman, and L Brown, Guy's, W H Brown, St Mary's, Doris E Bunbury, Royal Free, Emily E Cass, St Mary's, A. D Charters, St Thomas's, A M Chaudhuri and W A Clark, St Bart's, E Clayton-Jones, Guy's, J P Collinson, Sheffield, R W Cooper, Middlesex, E C Cosgrove, St Bart's, J H Cullinan, Guy's, S F L Dahne, St Bart.'s Alva A. Daniell, Royal Free, T S Daniels, Guy's, E G C Darke, St Bart's, E L Davies, Univ Coll, L F Day, St Bart's, R S de Bruyn, Guy's, Helena M de Hartog, St Mary's, E L F De Mel, Univ Coll, S J De Navasquez, Guy's, C I D'Netto and G C Dorling, London, Elsie M Douglas, Univ Coll, C B Drew, St Thomas's, Antoinette H P Ellis, Charing Cross, M R Ernst, St Bart's, Grace C Evans, Royal Free, S Farfel, St Bart's, J Fitzsimons, Middlesex, Isabella Forshall, Royal Free, Helen M G Foster, Univ Coll, H D F Fraser, St Bart's, J Furman, Durham, Yetta Gimpelson, St Mary's, Barbara M L Glover, Royal Free, V Goldman, Birmingham, L C Griffin, St Thomas's, Alma B Hardy, Royal Free, G B M Heggs, St Mary's, J S Hensman, St Bart's Mary M R Higson, Charing Cross, Janet I Hoare, Royal Free, A N Hobbs, St Bart's, Lilian J Hubble, King's Coll, H T J. Hynes, St Bart's, G L M Inkster, Middlesex, R E Isaac, Cardiff, L R Janes, St Bart's, P D Johnson, St Thomas's, Olive M G Jones, Royal Free, R L Jones, Birmingham, W R Keizer, London A R. Kerridge, Royal Free, N A King, St Bart's, Winifred A Ladds, Royal Free, O L Lander, London, L E Lane, Guy's, A H Lankester, St Thomas's, F G Leslie, London, S C Lewsen, Guy's, M. J Liberson, Durham, K Lindenbaum, St Mary's, P V MacGarry, Dublin and London, Muriel M Manley, St Mary's, S K Mansor, Birmingham, Ma Y May, Royal Free, F J Milward, St Thomas's, W E S Moreton, Charing Cross, T W Morgan, St Thomas's, K G Nerurkar, Guy's, Helen E M Newman, Royal Free, C G M Nicol, Charing Cross, S W K Norris, Birmingham, T St M Norris, London, R E Norrish, St Bart's, M D Nosworthy, R Oddie, and V E Palmer, St Thomas's, Dulcie J Peake, Royal Free, R L Peregrine, Guy's, T A P Proctor, Birmingham G W Rake, Guy's, B R R Reddy, Durham, Muriel Rippen, Univ Coll, W V Roache, St Bart's, D T Robinson, Manchester, Phyllis M Robottom, Westminster, L W Rose, Guy's, S F Russell, St Bart's, S Shalaby, London, V C Shroff, Westminster, M R Sinclair, St Bart's, A Sirry, Birmingham, Eileen R. B Snow, Royal Free and St Mary's, J E Snow, St Bart's, G A Stevenson, Birmingham, T C Stevenson St Thomas's, W H Tandy, Birmingham, K R Unger, Middlesex, K S Venkatachala Ayyar, Guy's Joan B Walker, Royal Free, J R. S D Wardrop, Birmingham L Wasef Manchester, J R. S Webb, St Thomas's, Margaret A. Willcox, King's Coll, J D Williams and L D Williams, Cardiff, S T Williamson, Guy's W M Wilson and W A Wood, St Bart's, and R G Zaglama, Manchester

UNIVERSITY OF LONDON —The title of Professor of Psychology has been conferred on Miss Beatrice Edgell, Ph D, D Litt, in respect of the post held by her at Bedford College

AN INTERNATIONAL CONGRESS AT FRANZENSBAD —Medical men attending the Second International Congress in Female and Cardiac Diseases which will be held at Františkovy lazné (Franzensbad) in May, will be granted a free Czechoslovak visa Further particulars may be had on application to the Czechoslovak Legation, 8, Grosvenor-place, London, S W 1

ROYAL SOCIETY OF ARTS —On Wednesday, Feb 23rd, at 8 P M., Mr Francis H Carr, President of the Society of Chemical Industry, will lecture on Insulin and its Manufacture

CONVALESCENT HOME FOR GLOUCESTER —A lady living near Gloucester has given her house and an endowment of £1000 a year for a convalescent home for women and children of Gloucester The home will be opened in May for 20 inmates

CHELSEA CLINICAL SOCIETY —A meeting of this society will be held at the Rembrandt Hotel, Thurloe place London, S W, on Tuesday, Feb 15th, at 8 30 P M, preceded by dinner at 7 30 P M. There will be a discussion on the Acute Abdomen, the speakers including Sir John Broadbent, Mr Duncan Fitzwilliams, and Mr Zachary Cope

INTERNATIONAL POST-GRADUATE MEDICAL COURSE.—A number of courses are to be held at Berlin under the auspices of the University and other bodies The subjects include Progress of Medicine (March 1st to 12th), Diseases of the Heart, Kidneys, and Vessels (March 14th to 23rd); Scientific Knowledge of Rays (March 24th to 31st), and Diagnostic and Therapeutic Technique (April 1st to 14th) There will also be other special courses and opportunities for work in Berlin hospitals Further particulars may be had from Kaiserin Friedrich-Haus Berlin N W 6, Luisenplatz 2–4

SPAHLINGER TREATMENT OF TUBERCULOSIS —The following resolutions have been passed at a meeting of the Lancashire and Cheshire Branch Council of the British Medical Association —

(1) That the branch council reaffirms the decision of March 24th, 1926, that a case has been made out for a full investigation of the Spahlinger treatment in England under complete medical supervision

(2) That under no circumstances does this branch of the B M A lend its name or reputation to the support of a public appeal for funds in relation to the Spahlinger treatment until such investigation has taken place in England with a successful issue

POST-GRADUATE TOUR IN THE UNITED STATES OF AMERICA AND CANADA —A tour is being organised by the Section of Surgery of the Royal Society of Medicine to start on July 23rd, 1927 It is proposed that the complete tour shall take about six weeks Among the places visited will be Boston, New Haven, New York, Philadelphia, Baltimore, Washington, Cleveland, Detroit, Ann Arbor, Grand Rapids, Chicago, Rochester (Mayo Clinic), Great Lakes, Niagara, Toronto, Ottawa, and Montreal Facilities will be offered to members who wish to shorten the tour, which is primarily organised for surgeons, but arrangements will also be made for those interested in other branches of medicine The cost of the whole tour inclusive of ocean passage, rail and other transport, hotels and meals, will be approximately £140 Travelling facilities on the same terms will be offered to the wives of those taking part in the tour Further particulars may be obtained from Mr C Max Page, 134, Harley-street, London, W 1

MIDDLESEX HOSPITAL NEW INSTITUTE OF OTO-LARYNGOLOGY —On Feb 8th the new Institute of Oto-laryngology, presented to the Middlesex Hospital by Mr T R Ferens, was formally handed over by him to Prince Arthur of Connaught, chairman of the hospital At present housed in the annexe, the institute will be transferred to new quarters as soon as the rebuilding of the hospital is complete It consists of a general library, three research laboratories, a common-room, a library and museum, a photographic dark room and a lecture-room Mr Ferens's gift was the sum of £20,000, and as the institute is to be used exclusively for research and teaching, it is hoped that studentships may be provided for post-graduates Eight or ten of these workers can be accommodated and no charge will be made for the use of apparatus and equipment. Such students, however, will have to find their own maintenance and, in order that candidates of exceptional merit may be enabled to take up research work at the institute whether they can support themselves or not it is proposed that three post-graduate studentships of £300 each should be established, for students from the United States the Dominions, and Great Britain respectively The admirable equipment, and the fact that the institute is to be devoted to research will, it is hoped, make it a centre of post-graduate instruction in oto-laryngology to which students will come from all parts of the world, and it is intended that the studentships shall be reserved for graduates of special ability After Prince Arthur of Connaught had formally received the institute from Mr Ferens, the value of the gift was acknowledged by Mr Somerville Hastings, aural surgeon to the Middlesex Hospital, and Mr F J Cleminson, assistant aural surgeon At the conclusion of the proceedings Prince Arthur announced that Mr Bernhard Baron had offered to endow the British studentship at the institute

Leeds City Tuberculosis Sanatorium Killingbeck —Asst. Res M O £250
Liverpool Open-air Hospital for Children Leasowe —Jun M O £200
L C C Mayford Industrial School for Boys, near Woking —Dentist £47 5s
London Hospital, E —First Asst and Reg. £300
Manchester, Ancoats Hospital —Asst Surg Reg
Manchester Royal Eye Hospital —Jun H S £120
Manchester, St Mary's Hospital, Whitworth Park —Res Surg O £200
National Hospital, Queen-square W C —Res M O £200
Newcastle-upon-Tyne, Wooley Sanatorium, near Hexham —Asst M O £350
Nottingham General Hospital —Res Cas O At rate of £200
Queen Charlotte's Maternity Hospital, Marylebone road, N W —District Res M O Also Asst Res M O Each at rate of £80
Queen's Hospital for Children, Hackney road, E —Res M O £200 Also H P and H S Each at rate of £100
Royal Free Hospital, Gray's Inn-road, W C —Second Asst in Ven Dis. Dept £1 1s per session Also Asst Phys
Royal London Ophthalmic Hospital, City-road, E C —Sen H S £150
Royal Northern Hospital Holloway, N —Res M O £200
Ryde, Isle of Wight, Children's Hospital and Maternity Home —Res. M O At rate of £100
Smethwick County Borough —Asst M O H and School M.O £600
South Shields County Borough —Venereal Dis M O £750
Stoke-on-Trent City —M O H £1400
Swansea County Borough —Asst. M O £600
Talgarth, Breconshire, South Wales Sanatorium —Jun Res M O £200.
Tottenham Maternity and Child Welfare Committee —Asst. M.O
Victoria Hospital for Children, Tite street, Chelsea, S W —Hon Anæsthetist
Watford Peace Memorial Hospital —Res.M O At rate of £150
West Bromwich, District Hospital —Res H S At rate of £200
West London Hospital Hammersmith-road, W —H P and two H S s Each at rate of £100

The Chief Inspector of Factories, Home Office London S W, announces a vacant appointment for a Certifying Factory Surgeon at Clwt y Bont, Caernarvonshire

Births, Marriages, and Deaths.

BIRTHS

BROOKS —On Jan 29th at Louise Margaret Hospital, Aldershot the wife of Captain J E Brooks, R.A.M C of a son

DANSIE.—On Feb 6th, to Dr and Mrs Dansie, of Welwyn—a son

HAMBER —On Feb 3rd at Lowlands, Fordingbridge, Hants, the wife of John F Hamber M.R.C S, M.R.C P of a son.

STEPHENS —On Feb 2nd, at Withington Hall Withington, the wife of Dr James R W Stephens, of a daughter

WATNEY —On Feb 3rd at Heron Croft, Woldingham the wife of Dr. Martyn Watney, of a son.

WINDER.—On Feb 6th, at a nursing home, Southampton the wife of Lieut -Colonel M G Winder R.A.M C, of a daughter

MARRIAGES

BRADNACK—KIRK —On Feb, 3rd 1927, at St Andrew's, Newcastle-on-Tyne *Gerald A A Bradnack*, M.R.C S L.R.C P, of Barton-on-Humber, Lincs to Nora Winifred Kirk M B, B.S Durh, of 34 Eldon place, Newcastle-on-Tyne

NORCOTT—COOK.—On Feb 3rd, at Wesleyan Church Wallington William Boyle Norcott, M.R.C S Eng., L R C P Lond., to Margaret youngest daughter of the late Mr and Mrs W T *Cook, Cranley House* Wallington.

PATEY—SUMMERS —On Feb 5th at Holy Trinity Church Hounslow, David Howard Patey, F R.C.S to Gladys Joyce daughter of Mr G Hamilton Summers, L D S and Mrs Summers, of Hounslow, Middlesex.

DEATHS.

ARNOLD —On Feb 5th at Byfield House Painswick Gloucestershire after a few days' illness, Francis Sorell Arnold B.A., M B Oxf in his 67th year

CAIE.—On Feb 6th at Cobden road Edinburgh William James Caie M.A., M.B Ch B, of Highbury House, Bury St. Edmunds

ELLIOT —On Jan 30th at Greenhill-gardens, Edinburgh after a very short illness Andrew James Elliot, M.D F R.C S E of Ardfenaig Isle of Mull, and formerly of Noakachari Assam

HEDLEY —On Feb 4th in London, suddenly, of heart failure John Hedley, J P, M D of Cleveland Lodge, Middlesbrough aged 84

HOGGAN —On Feb 5th at a nursing home in Brighton Frances Elizabeth Hoggan, M D in her 83rd year

SMITH —On Feb 5th at Redcroft Port Talbot D Lloyd Smith, M B Lond, of Llandrindod Wells, aged 55

STEDMAN —On Feb 2nd at Bramcote Weybridge Frederic Osmund Stedman M D aged 64 years

TRIGGS —On Feb 1st at a nursing home at Malden Surrey Fleet Surgeon J B Bowden Triggs M B R N formerly of Southsea in his 76th year

N B — A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Comments, and Abstracts.

ABRAHAM CHOVET.

Dr William Snow Miller, of Madison Wisconsin, contributes to Annals of Medical History vol viii No 4, an interesting paper upon a little known but outstanding figure in American medicine—namely, Dr Abraham Chovet, who was one of those eccentric personalities in which the eighteenth century was so rich Little is known of his early life, but his father, David Chovet, was a wine merchant in London, and Abraham was born in 1704 and was probably French by extraction In 1720 he was apprenticed for seven years to a surgeon by name Peter Gougoux Lamarque, a foreign brother of the Barber Surgeons Company, at a fee of 100 guineas When out of his articles he went abroad and studied anatomy under Jacques Benigne Winslow in Paris In 1732 we find him returned to London, giving lectures and demonstrations in anatomy, and publishing a small brochure of 26 pages, about 6 by 8 inches, with the inclusive title "A Syllabus or Index of all the Parts that enter the Composition of the Human Body; in Twelve Lectures for the use of those that go through Courses of Anatomy." Chovet had been in the habit of using wax figures of anatomical preparations which made by Denoue, professor of anatomy to the Academy of Sciences at Paris had been brought to London. These apparently did not satisfy Chovet for he mentions in the preface to his syllabus that he had "contrived a body in wax (now in hand) wherein the action of the heart and lungs and the circulation of the blood, will be made visible which I hope in some time to complete." By 1733 this aim was attained, for an advertisement in the *London Post* on Dec 27th of that year states that there is to be seen "this day and for the future, at Mr Lamark's, Surgeon in Orange-street, Leicester Fields, Mr Chovet's, the Surgeon's New Figure of Anatomy, which represents a woman chained down upon a table, supposed opened alive wherein the circulation of the blood is made visible though glass veins and arteries the circulation is also seen from the mother to the child . . . . with the Histolick (*sic*) and Diastolic motion of the heart . ." In 1734 Chovet was appointed a demonstrator to the Barber Surgeons, but continued to give "Compleat Private Courses of Human Anatomy," particulars of which could be obtained at various places and amongst others at the Rev. Dr. Desaguliers's house in Channel-row, Westminster This Desaguliers was most likely John Theophilus, a natural philosopher of Huguenot extraction, born at Rochelle, lecturer on experimental philosophy at Hart Hall, Oxford, in 1710, rector of Whitechurch, Middlesex, in 1714. He died in 1744. In 1736 Chovet resigned his position as demonstrator and left London; according to a story related by Weir Mitchell, whose father had it from Dr Physick, 1768-1837, Chovet had tried to save a malefactor about to be hanged by doing a preliminary tracheotomy, and the Government of the day did not regard this experiment with favour History does not record whether the attempt was successful but Chovet left the country. After a somewhat erratic sojourn in the West Indies he settled about 1774 in Philadelphia, taking a house in Vidal's-alley, where he at once commenced a course of lectures on anatomy, delivered "on elegant Anatomical Wax Figures" The opening lecture, delivered on Nov 25th was according to the contemporary press notice in the *Pennsylvania Gazette* "conducted with the greatest politeness and decorum, and the company departed expressing themselves in the highest terms of approbation." The elegant anatomical wax figures passed after Chovet's death into the keeping of the Pennsylvania Hospital and afterward into that of the University. Their ultimate fate is not exactly known, but in all probability they perished in the fire which destroyed much of the University museum in 1888 Alongside of his work in anatomy, Chovet would seem to have enjoyed a thriving clinical practice in spite of, or possibly on account of, his many eccentric habits He died in March, 1790, in his eighty-sixth year.

INFLUENZA IN 1782.

INFLUENZA is much discussed on all hands *just now*, and it would be singular if it were not The public interest is proved by the many articles—most of them written upon real information—which are appearing daily in the press. Our descendants should find the writing of medical history much facilitated The influenza epidemic of 1782 is alluded to in all histories of the disease but how uncertain is our information It seems to have been attended with more than ordinarily violent symptoms and has been recorded by a number of witnesses who had not, however, the assistance of a popular press Of these one of the most explicit was Dr R *Hamilton* of Luton whose "Description of the Influenza" was published in 1782 In May of that year the public had been debilitated by months of cold wet weather On the 22nd the thermometer stood one degree

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W

THURSDAY, Feb 17th —8 15 P M , Lieut -Colonel W P MacArthur · Old-Time Typhus in Britain, preceded by a demonstration on the subject at 7 45 P M

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace-road, S W

SESSIONAL MEETING

TUESDAY, Feb 15th —5 30 P M , Dr William Robertson will open a discussion on Immunisation against Diphtheria

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W

MONDAY, Feb 14th, to SATURDAY, Feb 19th —FELLOWSHIP OF MEDICINE Special lecture at the Medical Society, 11, Chandos street W at 5 P M , on Thurs Dr Wilfred Harris Trigeminal Neuralgia Open to all members of the medical profession without fee — CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W C Special clinical surgery demonstration on Feb 14th, at 2 P M , by Mr Harold Kisch Open to all members of the medical profession, without fee, but those wishing to attend are asked to notify the Hospital Secretary Museum 1539 —ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Charing Cross, W C Special clinical ophthalmic demonstration at 5 P M on Feb 18th, by Mr G Viner, on Ocular Palsies — LONDON LOCK HOSPITAL, Dean-street, W Special Course in Venereal Diseases Clinical work daily and special lectures —COMBINED COURSE IN CHILDREN'S DISEASES, Paddington Green Hospital and Victoria Hospital for Children All day course, consisting of lectures and demonstrations Further information from the Secretary of the Fellowship of Medicine

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY, Feb 14th —10 A M Surgical Clinic 2 P M , Medical Cases in the Wards 2 30 P M to 5 P.M , Medical, Surgical, and Gynæcological Clinics Operations

TUESDAY —2 30 P M to 5 P M , Medical, Surgical, Throat, Nose, and Ear Clinics Operations

WEDNESDAY —2 30 P M to 5 P M , Medical, Skin, and Eye Clinics Operations

THURSDAY —11 30 A M , Dental Clinic 2 30 P M to 5 P M , Medical, Surgical, and Ear, Nose, and Throat Clinics Operations

FRIDAY —10 30 A M , Throat Nose and Ear Clinics 2 30 P M to 5 P M , Surgical, Medical, and Children's Diseases Clinics Operations

On TUESDAY, Feb 15th, and THURSDAY, Feb 17th there will be special demonstrations of Ear, Nose and Throat Cases and Surgical Cases by Mr W Ibbotson and Mr H W Carson respectively

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, Feb 14th —10 A M , Mr MacDonald Genito Urinary Operations 2 P M , Mr Addison Surgical Wards 2 P M , Dr Ironside Medical Out patients

TUESDAY —10 A M Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M , Mr Vlasto Throat, Nose, and Ear Department

WEDNESDAY —10 A M , Dr Owen Medical Diseases of Children 2 P M , Dr Scott Pinchin Medical Out-patients 2 30 P M , Mr Armour Surgical Wards

THURSDAY —10 A M , Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 3 P M , Sir Henry Simson Gynæcological Wards

FRIDAY —11 A M Dr Pritchard Modern Methods in Medicine 2 P M , Mr Sinclair Surgical Out patients

SATURDAY —9 30 A M , Dr Burnford Bacterial Therapy 10 A M , Mr Banks-Davis Operations of the Throat, Nose, and Ear

Daily —10 A.M to 5 P M , Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays 10 A M to 1 P M)

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE

TUESDAY, Feb 15th —3 15 P M , Dr C C Beatty Causes and Treatment of Vomiting in Children

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C

THURSDAY, Feb 17th —4 P M , Dr Poynton Points in the Treatment of Alimentary Diseases

NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, Queen-square, W C

MONDAY, Feb 14th —2 P M , Dr Hinds Howell Out-patient Clinic 3 30 P M , Mr Leslie Paton Lesions of the Trigeminal Nerve affecting the Eye

TUESDAY —2 P M Dr Walshe Out-patient Clinic 3 30 P M , Dr Greenfield The Cerebro spinal Fluid in Meningitis

THURSDAY —2 P M Dr Kinnier Wilson Out-patient Clinic 3 30 P M , Dr Gordon Holmes Cerebellar Disease

FRIDAY —2 P M Dr Adie Out-patient Clinic 3 30 P M , Mr Perkins Injuries to Peripheral Nerves

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital 49 Leicester square W C

TUESDAY, Feb 15th —5 P M , Dr G B Dowling Staphylococcal Infections

THURSDAY —5 P M Dr K N Buley Pathology Demonstration

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY POST-GRADUATE LECTURES

WEDNESDAY, Feb 16th —5 30 P M , Mr F Coleman Relation of Dentistry to Allied Sciences

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

MONDAY, Feb 14th —6 P M (at the Medical Society of London, 11, Chandos street, W) Mr E B Turner Recreation and Physical Exercise

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester

WEDNESDAY, Feb 16th —4 15 P M , Mr A. C Magian Treatment of Painful Menstruation

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Feb 18th —3 30 P M (at the Royal Hospital), Mr Blacow Yates Herniæ and their Complications.

Appointments.

ABERNETHY, D A , B M , B Ch Oxf , has been appointed Hon. Assistant Surgeon to the Radcliffe Infirmary and County Hospital, Oxford

BAKER, LILY, M B B Ch R U I , F R C S I , to the charge of the Antenatal Department, Bristol Royal Infirmary

DOUGLAS, T H J , L D S , F R F P S Glasg , Dental Officer (Dental Referee) in the Department of the Scottish Board of Health

RIGGALL, ROBERT M , L R C P Lond , M R C S , L R C S Edin a Member of the Honorary Clinical Psychological Staff of the West End Hospital for Nervous Diseases

WHITFIELD, A , M D , F R C P Lond , Emeritus Professor of Dermatology, King's College, London

Certifying Surgeons under the Factory and Workshop Acts MACKAY, A M , M B Ch B Edin (Lynn), ROBERTSON, J M (Stock District, Essex)

St Thomas's Hospital HARPER, C H , M R C S , L R C P Lond , THOROLD, G P , M B , B Ch Oxf , ELLIS, R W B M B , B Ch Camb , CONNELL, A B , M R C S L R C P. Lond , WIGLEY, J G , M B , B Ch Camb , METCALFE R H , M B , B Ch Camb , YULE, E M R C S , L R C P Lond , RICHARDSON, L A , M B , B Ch Camb , Casualty Officers and Resident Anaesthetists , MILFORD R D , M B , B Ch Camb AMIES, C R , M B , B S Lond , LING, T M , M B , B Ch Oxf , WILLIAMS, D O , M B , B Ch Oxf , Resident House Physicians , CHIESMAN, W E , M B , B Ch Camb , Resident House Physician (for Children), BLAXILL, B , M R C S , L R C P Lond , FOTHERGILL, E L M B B Ch Oxf , CROFT, C R , M B , B Ch Oxf , BYRNE-QUINN, A , M B , B S Lond , Resident House Surgeons , TIPPETT G O , M B , B S Lond , Resident Orthopædic House Surgeon , SCREECH, J A , M B , B S Lond , and WILSON, A G , M R C S L R C P Lond , Resident House Surgeons for Ear and Throat respectively , MASCALL, W N , M R C S , L R C P Lond , Senior Obstetrica House Physician , WRIGLEY, A J , M B B S Lond , F R C S Eng , Junior Obstetrica House Physician , STANLEY C A , M R C S , L R C P Lond , Senior Ophthalmic House Surgeon BOWER, M DYKES, M B , B Ch Oxf , Junior Ophthalmic House Surgeon

Vacancies.

For further information refer to the advertisement columns

Bangor, Carnarvonshire and Anglesey Infirmary —H S £200

Birmingham University —Professor of Physiology £1000

Barnsley, Beckett Hospital —Sen H S £220

Bethnal Green Metropolitan Borough —M O H £1000

Brighton, Royal Sussex County Hospital —Hon Clin Asst to Ear, Nose and Throat Dept

Bristol Mental Hospital —Second Asst. M O £400

Bury and District Joint Hospital Board —Asst Med Supt £400

Carlisle, Cumberland Infirmary —H P At rate of £155 Also Jun H S At rate of £135

City of London Maternity Hospital, City road, E C —Asst Res M O At rate of £80

Dublin, Royal City Hospital, Upper Baggot street —Matron £175

Durham County Council —Asst Welfare M O £600

East London Hospital for Children and Dispensary for Women, Shadwell, E —Asst Surg

Elizabeth Garrett Anderson Hospital Euston road N W —Asst Path At rate of £150 Also Asst Phys , Mechano therapeutic Dept £100

Evelina Hospital for Children Southwark —H P At rate of £120

French Hospital and Dispensary, 172 Shaftesbury avenue W C —Hon Clin Asst

Hackney Hospital, 230, High-street, Homerton, E —Jun Asst M O £350

Hospital for Sick Children Great Ormond st , W C —Cas O £100

Hull Royal Infirmary —Cas H S At rate of £130

King's College Hospital, S E —Radiographer

Lancashire County Council —Asst County M O's £800

Lancashire County Mental Hospital, Winwick Warrington —Asst M O £250

Leamington Spa Warneford General Hospital —Res H P £150

Hunterian Oration

ON

HUNTER'S IDEALS AND LISTER'S PRACTICE

Delivered at the Royal College of Surgeons of England on Feb. 14th, 1927,

By Sir BERKELEY MOYNIHAN, Bart
K C M G., C B , M S Lond ,
PRESIDENT OF THE COLLEGE

On this day, the 199th anniversary of his birth, we commemorate the services of John Hunter to the Science and the Art of Surgery In this year we celebrate the centenary of the birth of Lister Hunter and Lister! From all who have ever served the cause of surgery these two stand apart by reason of the immeasurable gifts which they have conferred upon their fellow men May we now recall something of Hunter's work and of his ideals in respect of the conquest of disease which the genius of Lister made possible?

Man's life is warfare The individual, the whole race, is beset by foes, unresting, relentless Against them our defence, if we are ever to subdue them, must be carefully planned and diligently strengthened But defence, however stubborn, is not enough Attacks designed after scientific study of the enemy strongholds and methods, and launched with impassioned zeal, must never for one instant falter Not all our attacks meet with success We are cheered when we gain some notable victory, yet when we suffer defeat, as wave after wave of our advance is checked and repulsed, we do not lose heart Failure inspires us to fresh and still more eager endeavour

In this year, the centenary of Lister, we rejoice to acclaim the greatest victory ever won by man against his enemies We, who are in active work to-day, are perhaps unable to measure the full extent of that victory, for during the long fight, lasting almost exactly 60 years, our standards have been so changed that we cannot truthfully compare our work with that of our intellectual ancestors Operations from time immemorial so mortal as to be prohibitive, are now freely performed without anxiety Operations formerly unimaginable are now matters of everyday occurrence The mere tale of such work done does not adequately illustrate the change On my last day as surgeon, on the full staff of my hospital, I performed six abdominal operations *Not one of* these was practised by any member of our staff during *the year in which I became* house surgeon, nor had such a diagnosis as was made in three of these cases, and verified at the time of operation, ever then been attempted in the history of *medicine* *Above all*, a statement of facts and a comparison of methods does not in adequate degree convey to our minds the difference of outlook of the intellectual and *spiritual* approach of a man to his daily task, as between the surgeon in the days before Lister and since It is barely possible for us to imagine how men felt about their daily work when an eminent surgeon could speak of his hospital as a "house of death", when hospitals "were little short of pest houses," as Lister said,[1] and when the oppressive mortality compelled the closure of wards or of a whole hospital for months, until the curse was lifted from them

BEFORE AND AFTER LISTER

The change, *of incalculable* benefit to humanity, is due to *one man, Lister*[2] Before Lister's time the surgeon dreaded the almost inevitable consequences of his operation Lister made surgery so free from risk that we now may say that, with due care in the detailed application of the lessons learnt from him, it is no longer the fatality of the operation itself which is feared In these days when a patient dies it is not because the operation leads to septic complications which he cannot withstand We fear for him chiefly, if not only, when the extent of the operation is formidable, or when the most sensitive regions of the body, sometimes remote and almost inaccessible, are attacked by methods which half a century ago were beyond the wildest dreams of the most adventurous mind Our main concern in these days is with the condition of the patient before and after operation. We seek to make him as safe for surgery as surgery has been made safe for him Lister, in short, has made all the methods applied by the surgeon almost devoid of risk in *themselves* The risks run are dependen upon accessory factors, upon the state of the patient the nature and extent of the disease, the intrinsic susceptibility of organs, or the anatomical conditions responsible for the difficulties which must be surmounted

Do we fully realise the implication of all these statements? We are at the end of an epoch, indisputably the greatest in our history, the epoch in which manipulations by the surgeon have been robbed of the prohibitive dangers which formerly repelled Now when failure comes it is the individual who fails, not the methods of which Lister laid the eternal and unshakable foundations Lister by his genius recruited an army of surgeons which has gained astounding victories The human body from crown to toe has for all time become our indisputable kingdom, within which we may come and go at pleasure, undismayed by the pestilencies which menaced us before Lister forever subjugated our enemies Lister is indeed Captain of the men of life.

We, who inherit the glorious legacy of Lister, must not be content merely to enjoy and exploit our incomparable heritage No great teacher measures his success in contemplation of his own efforts His greatness lies rather in the work which he inspires others to do, in the tradition not of past accomplishment, but of future *devotion* Traditions are fostered and increased, not by routine observance of ancient ceremony nor by mute obedience to outworn creed, but by active faith forever seeking new truths and exploring new paths, in conformity with the old spirit and with unchanging devotion to the great ideal of which the tradition is the shrine There is immortality of the tomb, and immortality of the resurrection The soul of a great teacher is born again in his pupils We are Lister's disciples What, then, are we to do with his gift to mankind? We use it already to the immense advantage of the individual sufferer, a therapeutic weapon of unapproached perfection, we are making it, and we must continue in increasing degree to make it, far *more than that* After the Great War the statesmen of Europe, moved by the highest ideals, sought, not perhaps wholly in vain, to convert the allied victory into lasting peace The statesman's ideal is a warless world War is to end war Ideals are not so much for capture as for pursuit, and though the statesman may never attain his ideal, yet the happiness and progress of mankind surely depend upon the grim and perhaps endless struggle to reach it. So, too, for us surgery must be regarded as the most powerful weapon of research upon man and animals ever given to our hands, and the end of research is not the cure only, but far better the prevention, of disease

JOHN HUNTER'S CONCEPTION OF SURGERY

The oration I have now the honour to deliver was founded 114 years ago as "a lasting mark of respect to the late John Hunter"[3] Let us turn to Hunter, the greatest surgeon of all the ages before Lister, and see how he regarded the art he practised In the opening lecture of each surgical course, Hunter said to his students,[4] "The last part of surgery, namely operations, is a reflection on the healing art; it is a tacit acknowledgment of the insufficiency of surgery It is like an armed savage who attempts to get that by force which a civilised man would get by stratagem." In his "Treatise on the Venereal lower than on the preceding Dec 22nd, and Whitsunday was as cold as Christmas Day Hamilton describes a terrific May thunderstorm, and this reminds us that the old writers generally regarded influenza epidemics as dependent on sensational changes of weather or connected with volcanic eruptions The influences of the stars and the heavens had, indeed, been long held to preside over disease, especially over sudden epidemics The Italian name influenza signified astral influence and was first generally used during the great epidemic in 1743

Standing in the street of Luton, Hamilton watched the lightning, which appeared not in flashes, " but in large balls, one rolling after another over the heavens northward, and now and then dashing one against another " This was an omen, for nearly at the same time the influenza appeared suddenly in London, and spread with such rapidity that one city physician visited 107 patients in one day The symptoms were peculiar in their severity—a great cough, violent sneezing, and coryza, the latter " excoriating the upper lip and vellicating the membrana sneideriana, rendering the inside of the nose extremely painful " A soreness over the eyes was complained of " chiefly about the brows, which they [the patients] said was seated in the bone, and rendered them stiff and painful to be opened " and susceptible to light There were the usual diffused pains all over the body, but not much temperature, which in those days had to be judged from cutaneous sensation, with deductions from the pulse-rate A traveller leaving London early in the morning observed " many of those who cry things for sale, to lean their heads against the walls of the houses, and cry their goods , not being able to support themselves upright " Coalmen and certain costers are still seen to put a hand to the side of the face when uttering their bellow This may be a ritual reminder of the old epidemics when people leant their heads against walls before shouting, or it may be done to deaden the noise to the shouter, or, again, it may be intended to direct a shout

The influenza was still somewhat of a novelty in 1782 In one of Samuel Foote's comedies of date 1770 it is referred to as " the new influenza," though in 1762 Mrs Montagu refers to it as the " fashionable cold " The 1782 influenza was one of 11 severe epidemics which raged in England from 1693–1790 In the nineteenth century there were six great epidemics up to 1874, but the greatest series occurred in 1789–92, when the death-rate in London was alarming In 1782 Hamilton notes that few died, though all patients suffered from intense weakness The Parisians laughed at the unpleasant scourge at that time, nicknaming it the " petit poste " and " petit courier "

SHREDDED SUET AND GROUND RICE

AT Stoke-on-Trent on Jan 28th, before the Potteries Stipendiary Magistrate, an important test-case was heard, when two grocers were summoned for selling shredded beef suet adulterated with ground rice The prosecution stated that the shredded suet was made in Manchester and samples purchased at one of the shops had been found to contain 21 9 per cent of ground rice, and those bought at the other 19 8 per cent It was submitted that a proper standard was 15 per cent For the defendants it was claimed that about 19 per cent was a fair standard The magistrate, who reserved his decision, said there was no question of fraud of deceiving the customer, or of concealing inferior ingredients It was purely a question of what was an excessive quantity of rice, a certain amount being necessary to separate the suet

GENIUS AND DISEASE

THE publisher's note to Dr A C Jacobson's[1] attempt to appraise for popular information the influence of disease upon artistic performance, is that we have here " a sane and balanced close-up of the men of genius, whose lives and work have been affected by drugs, drink, and disease " The little book may be a " close-up "—we do not take the publisher's analogy but it is not sane, for the deductions are not based in a healthy way upon logical evidence , and it is not balanced, for the quality (whatever it may be) that is implied by the term " genius " is credited in no proper proportion to the victims of the " close-up " The author's thesis appears to be that men of genius require disease, drugs, or alcohol to set free the creative powers which are resident in their secondary personalities , and as witnesses to the power of alcohol he cites 76 names Are we to agree that all these are people of genius on any balanced view ? And is it a sane conclusion from the enumeration that Æschylus, Caracci (which ?), Handel, Kingsley (which ?), Stephen Collins Foster, and Richard Le Gallienne owe their respective fames—and these are hardly of comparable quality—to the use of alcohol ? Are we to believe, because Horace praised Falernian wine, and Brouwer depicted revelling boors, and Sheridan urged the company to " let the toast pass," and certain of Dickens's immortal creations indulged in convivial drinking, that these undoubted men of genius consumed alcohol in any unusual manner, or did their best work only under its influence ? Did Omar pass his off-time sitting under a tree with a jug ? If Dr Jacobson should reply that no such questions arise fairly out of his book, he has failed in the trade of an author by not making clear what he is writing about The same reflection is induced by perusal of subsequent chapters Dr Jacobson cannot have had time to acquire personal acquaintance with the work of those whose names he cites with complacent profusion—no one could possess such encyclopædic knowledge Nor has he found time to inquire into the validity or significance of the biographical details relied upon for the distribution of sinister stigmata The publisher acclaims the work as " scientific in its content," but a less scientific approach to an important subject could hardly be imagi

A DEFINITION OF DRUNKENNESS IN THE NAVY.

WE learn from the current issue of the *Journal of the Naval Medical Service* the proper meaning to be attributed to the word " drunk " in naval practice The Admiralty has laid down that a charge of drunkenness to be supported by evidence " that, through the intoxicating effect of liquor, the accused was unfit to be entrusted with his duty " The responsibility of the primary decision rests with the accused's commanding officer, but if there is any doubt about the reason the medical officer's opinion should be obtained at once, lest, a plea of sickness being brought forward at the court-martial, a guilty person may escape due punishment The medical officer, if called in, may be required to give his opinion of the accused's fitness for duty, and must determine whether his condition can be accounted for wholly or in part by disease or injury Therefore he should perform a complete and comprehensive examination at once, whether the accused complains of any disability or not He should take complete notes at the time and try to form, from observed facts, an opinion whether accused's condition and behaviour are normal or abnormal, and whether he is fit to do duty ; if his conduct and behaviour are abnormal, whether this is due to consumption of alcohol or to disease or injury and in what proportions These opinions will be stated in the medical officer's summary of evidence, if a court martial should follow

A NEW EDITION OF LEE'S " MICROTOMIST'S VADE-MECUM "

To the Editor of THE LANCET

SIR,—In conjunction with Dr E V Cowdry, of the Rockefeller Institute, N Y , I am editing the ninth edition of this book which it is proposed to bring out shortly In addition to general technique the book will contain articles by experts on neurological technique, protozoa, histological applications of measurements of acidity and oxidation, microdissection, cultivation of tissues in vitro, fats, bone and teeth, and cytological technique The purpose of this letter is to invite research workers and others to forward to me, as soon as possible, any new information which they may be glad to have incorporated in the book It is not proposed to include bacteriological technique

I am, Sir, yours faithfully,

J BRONTE GATENBY

Zoological Department, Trinity College, Dublin,
Feb 4th, 1927

OVERFEEDING IN PREPARATORY SCHOOLS

To the Editor of THE LANCET

SIR,—I have had a letter from a correspondent who asks " Can anything be done about the overfeeding, and especially over-starchy feeding, in first-class preparatory schools ? I went lately to see a small cousin at such a school There the boys have six meals a day, the three intermediate meals consisting of milk and biscuits, rock cakes, bread and butter, and buns The headmaster's wife assured me that ' the boys have no time to be hungry ' This school can be no exception, for when we ask a young nephew at another what he has to eat his reply is punctuated at intervals with ' And then we have cocoa and biscuits ' Fruit, with the exception of bananas, appears to be rare The diet mentioned at the first school was, of course, in addition to ' tuck ' three times a week A good many of the errors come, I believe, from ignorance and not from pig-headedness "

These observations accord generally with my own, which are the result of frequent contact with schools of all kinds My committee will be glad to advise heads and housekeepers of schools on suitable dietaries

I am, Sir, yours faithfully

CHARLES E HECHT,

Hon Sec , Schools Committee, Food Education Society

Tufton street, S W , Feb 4th, 1927

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[1] Genius Some Revaluations By Arthur C Jacobson New York Greenberg and Co 1927 $2 50

the activity and the growth of surgery depend upon the nourishment which biology may bring. Unless surgery calls in the aid of all the sciences with which biology is related it will remain as static as ancient geometry, whose figures were drawn once for all. Modern geometry is concerned with function, with the variations of movement by which a figure is described. Surgery's concern in the future will not only be with the states produced, with established organic disease, but with its allies it will help to eradicate some of those variations in function by which perhaps they have been caused, with which they are associated, and by which their presence is declared.

If sometimes we blame Sharpey and his school for the unhappy cleavage between anatomy and physiology,[6] we must at least acknowledge the great debt we owe to him for laying so firm the foundation of new methods for the studying of functional anatomy in man and in animals Physiology, with its offspring biochemistry, has introduced physical and physico-chemical methods ;-methods of quantitative observation which have supplemented where they have not supplanted the merely qualitative methods. The brilliant work of Sherrington Lucas and others upon the nervous system gave us fresh conceptions of it; further advances along their lines were becoming difficult until the application of thermionic valves made it possible, by recording the transmission of impulses in the afferent nerves, to investigate the effects of stimuli upon the sensory end-organs And in the interpretation of symptoms a study to which my old friend James Mackenzie bent the strength of a most eager and original mind physiology alone can read the occult significance In acute pancreatitis there is, as Halsted,[7] a great benefactor of mankind, first told us, a lividity of the face. Why? Is it due to some disordered action of the respiratory system imposed by the closeness of the affected organ to the diaphragm and the structures which lie above it or is there circulatory stasis, or alteration in the blood pigment?

Physiology is the master of all the methods by which these three possible causes may be quantitatively investigated. Estimations of the oxygen saturation of the arterial blood give information of disturbance of respiratory function: information which we may compare to that derived from a measurement of the amount of blood-urea when the renal functions are deficient Estimations of the carbon dioxide combining power of the blood are essential if we are to recognise the presence and the degree of acidosis Circulatory stasis may be gauged by the ethyl iodide method of measuring the circulation rate. Alterations of the blood pigment are detected by the spectroscope and quantitative estimations of abnormal pigments are readily made after the method of Hartridge.

Like the physiologist the bacteriologist is engaged in work which is ranged alongside our own. The more he discovers of the offensive powers of bacteria and of the defensive mechanism of living flesh under their attack, the nearer are we brought to our surgical ideal The alliance between bacteriologist and surgeon has been necessary for the proof that the true estimate of an antiseptic is not measured only by its bactericidal value tested in the laboratory, but also by its power to encourage the blood serum or the tissues themselves to ward off and to break up an attack. Hunter, with the crude methods which were all he had at his disposal, demonstrated the tryptic power of wound discharges and anticipated a part of the admirable work of Almroth Wright during the war. Who could have imagined, when Lister's work began, that to-day we should be able to keep tissues alive in our laboratories, breeding them and growing them in captivity, separating the one kind from the other, noting the influence which one type of cell is able to produce on its neighbours and thus coming by the kind of knowledge which John Hunter so earnestly sought, a knowledge of the intrinsic processes of growth and repair? The problem of malignancy is now installed in our laboratories, and the cancer cell is being compelled to yield most reluctantly some of the complex secrets of its bolshevist behaviour.

The old art of vital staining, which Hunter learnt from Belchier, of Guy's, has taken on new improvements: by means of suitable dyes we can now select special elements in the living body, trace their movements and note their conduct The experimental embryologist, too, can help us if we seek to know in what manner the various tissues of the body come into existence.

These, then, are the allies of surgery in the Great War: biology in all its branches, chemistry, physics, radiology Never before has the master surgeon had such bountiful resources at his disposal. He cannot afford to neglect a single one of them. The urgent problem of our time is therefore a dual one We must seek to determine the line of advance which surgery will trace in the years ahead, increasing and strengthening our alliances; and we must earnestly discover how the leaders of our army of advance are to be trained. Are the old methods which in their day served so well still enough, or is the form of warfare already so changed, and now so rapidly changing, that a new discipline and a wider knowledge are needed?

HUNTER AND LISTER

To answer these questions we must look backward, and, calling upon our past experience, seek in the records of our great masters not so much what their knowledge was, but what methods they pursued as they qualified themselves for great leadership. We shall find at once that Hunter and Lister, incomparable among surgeons, each put himself through a long and arduous training never resting in his inquiries as to the activities of living matter, as to its behaviour in health, and its reactions in disease. At the threshold of our survey we recognise that the activities of our two leaders are not unrelated. Hunter's professional life covered the latter half of the eighteenth century, Lister's the corresponding half of the nineteenth century; between them there intervened two generations of surgeons My distinguished predecessor, the late Sir Rickman Godlee, who gave this oration in 1913, tells us in the life of his uncle Lord Lister[8] that "Hunter was Lister's greatest hero," that "his copy of Palmer's life of Hunter was marked in many places by pencil notes which show that he was studying it at least as early as 1855," that ' a proof of Sharp's engraving of the portrait of Hunter by Reynolds, which had belonged to Syme, hung in his study, ' that "he always spoke of Hunter with reverence Further, if we turn to the paper[9] which Lister read to the Medico-Chirurgical Society of Edinburgh in March 1858, on the "Causes of the Coagulation of the Blood" we find evidence of his early admiration of Hunter. ' The nearest approach," he wrote, "which I have been able to find to such an observation (that blood which is retained in the smaller veins of the body remains uncoagulated) is contained in that inexhaustible treasury of original observations and profound reflection, the works of John Hunter.

If I may borrow a simile from the football field to express the relation of these two great men I would say that it was Pasteur who made the final pass to Lister possible, it was Hunter's captaincy in the scrum that placed Lister in the scoring position. Indeed, we have to admit that while Hunter's resource in midfield has never been excelled, or even approached, and though the ingenuity with which he worked the surgical ball towards the goal remains unsurpassed, yet when he was in a scoring position and we are counting so confidently upon a "try," the ball is fumbled, and our hopes are foiled. The young surgeon of to-day can learn almost as much from Hunter's mistakes as from his triumphs

The Career of Work of John Hunter

Let us now examine the discipline to which John Hunter submitted himself to attain his leadership. He is the "Dick Whittington of British surgery. In September, 1748 at the age of 20, he left his home, Disease."[5] a work more frequently quoted for its glaring errors than for its profound truths, he indicates one of the ways which leads to this ideal, the prevention rather than the cure of disease. He writes: "As disease in general should not only be cured but when it is possible prevented, it will not be improper to show as far as we know how that may be done: for in this disease we can, with more certainty, prevent infection, its origin being known.' He then adds "corrosive sublimate in water, about a grain to 2 to 8 ounces has been known to prevent the catching of the disease."

Hunter anticipated that a time would come when surgery, gaining much from the general advance of knowledge, might be rendered both knifeless and bloodless. I do not speak with irony when I say that Lister's work has brought us appreciably nearer to Hunter's ideal. It is true that its first effect has been to increase a hundredfold the operations practised and to cause an advance into territories never before subdued. The advance was timorous halting and at first so unsafe that the men who led the thought of the day, whose stubbornness was iniquity, whose changeless idolatry was the worship of the images of their fathers, did not hesitate to demand that he who practised such a deadly operation as ovariotomy should be indicted for manslaughter. Lister so taught us that to-day, with little risk and with incomparable advantage to our patients, we who are strong in the faith that our fathers rejected not only attack disease with remedial operations we also seek out and expose, we inspect and study it in its deepest recesses, and in its earliest structural manifestations, sometimes discovering its cause, or at least its impressive antecedent, and often tracing the lines of its gradual advance. We are at last coming to appreciate the reaction of living organs upon each other. As I have claimed on earlier occasions, we have created and are slowly building up knowledge from which our predecessors were completely debarred, not new science but new vision of an old science: the pathology of the living. This branch of surgical learning will continue to grow, and therein surely lies our hope that surgery may one day help to end surgery, by enabling us to discover how these earliest processes of disease may be inhibited. Some claim this as the era of preventive medicine. Is there not preventive surgery also? Hunter was possessed of an ideal. Lister gave the power to realise it. We, too, wage war to end war. "Pereant arma bellica."

THE ALLIES OF SURGERY.

At the end of a long, arduous, and triumphant fore- surgical campaign we, if we are prudent and sighted, shall survey our equipment and our arsenals and consider the strategy of our next advance. The military leader of to-day seeks help from every branch of science, the victorious leader is he who best knows where to seek the help of which he is in need; who has the genius early and quickly to perceive how all new knowledge can be best applied to the art of war. Surgery, too, is warfare: its advance is conditioned by contemporary progress in every branch of science and its virtue lies in the number and the vigour of its allies. Into what alliances, then, has surgery entered with other branches of knowledge?

The science of physics has brought radiology to our aid, and the discovery of the X ray has rendered the living body translucent. After an opaque meal these rays disclose the normal movements of the alimentary canal: and we learn, as in no other way, the functional anatomy of the intestine. Any defect of outline may reveal a structural deformity and perhaps enable us to make a precocious diagnosis of conditions whose terminal stages when neglected are fatal.

The art of the chemist can be allied with that of the physicist, as the work of Graham, of St. Louis, has shown, with the result that the physiology of the liver, the functional anatomy and the pathological conditions of the gall-bladder the association of gall-bladder activity with movements of the duodenum may all be studied by a new method. And this method in alliance with that of the surgeon, realises another stage in our advance towards the prevention of gall-stones, themselves a tardy result of insidious changes originating elsewhere. Chemistry lends its invaluable aid in discovering for us the functional activity of the kidneys, and by its investigation into the cholesterin and calcium content of the blood is helping us to understand some of the problems relating to the functional activity of the liver and gall-bladder. Such conditions as acidosis and alkalosis are impenetrable secrets if chemistry is not brought to our aid.

Physiology by its inclusion in the Faculty of Medicine acquires a double function. It remains a pure science directing its inquiries solely to the advance and perfection of knowledge. But it becomes also an applied science in league with clinical medicine and surgery. As he sees his conquest of knowledge applied practically to the saving of human life the physiologist will be encouraged to yet closer study of normal and aberrant vital processes in man. He, too should stand with the surgeon by the bedside. The great gap between the powers of the surgeon and the aid which the physiologist might give would thereby be reduced, and the reproach removed from his science that, in this sense, it is lagging far behind. The surgeon's activities enable him to uncover the hidden mysteries of early structural changes. He offers new opportunities for the study of normal and perverted function to the physiologist with whom he might inquire into those early functional changes which correspond to and are caused by organic disorder. The surgeon seeks earnestly to know what degree of impairment of function is to be attributed to the textural changes which our new methods have revealed to us. The physiologist may tell us much that we are eager to learn of the effects of our manipulations upon the normal activity of tissues, and of the full or imperfect return of function when diseased tissues have been removed. With his help we may learn what without him we may never learn, the significance and the methods of the causation of early symptoms, and the origins of those pathological changes with whose late mutilations we are, unhappily, only too familiar. With our help he has learnt what otherwise he could not learn that, for example the spleen by an excessive destruction of red cells may produce a condition of jaundice and that the removal of the enlarged spleen results in the disappearance of the jaundice, which is thereby demonstrated to be of hæmolytic origin. Physiologist and surgeon are far more often than is realised necessary to each other, and a closer communion should exist between them. Many of the truths the physiologist endeavours to teach can be demonstrated more clearly in the wards than in the laboratory, and are therefore, because of this human interest, impressed almost indelibly upon the minds of students. The phenomena of cerebral compression of Traube- Hering curves, of Cheyne-Stokes respiration, the symptoms of hyperthyroidism and those produced when the secretion of the thyroid gland is diminished or absent; many of the aspects of jaundice, in addition to the demonstration of hæmolysis as its occasional cause, and of the relations between the liver, the spleen and the bone-marrow; illustrations of the normal and aberrant functions of the kidney; changes in the chemistry and constitution of the blood may all profitably be discussed in the ward rather than in the laboratory or the lecture theatre. Students would then realise from their earliest days the truth, which later comes almost with a shock, that physiology and anatomy are not fundamental subjects but are interstitial, and should grow alongside and be incorporated with the facts of clinical medicine and surgery which they illuminate and explain. Inter- stitial tissue has as one of its functions the carrying of blood-vessels to nourish cells whose activity is dependent upon the richness of their blood-supply. Biology provides the interstitial tissue of surgery:

the activity and the growth of surgery depend upon the nourishment which biology may bring. Unless surgery calls in the aid of all the sciences with which biology is related it will remain as static as ancient geometry, whose figures were drawn once for all. Modern geometry is concerned with function, with the variations of movement by which a figure is described. Surgery's concern in the future will not only be with the states produced, with established organic disease, but with its allies it will help to eradicate some of those variations in function by which perhaps they have been caused, with which they are associated, and by which their presence is declared.

If sometimes we blame Sharpey and his school for the unhappy cleavage between anatomy and physiology,[6] we must at least acknowledge the great debt we owe to him for laying so firm the foundation of new methods for the studying of functional anatomy in man and in animals Physiology, with its offspring biochemistry, has introduced physical and physico-chemical methods;—methods of quantitative observation which have supplemented where they have not supplanted the merely qualitative methods. The brilliant work of Sherrington Lucas, and others upon the nervous system gave us fresh conceptions of it; further advances along their lines were becoming difficult until the application of thermionic valves made it possible, by recording the transmission of impulses in the afferent nerves, to investigate the effects of stimuli upon the sensory end-organs And in the interpretation of symptoms, a study to which my old friend James Mackenzie bent the strength of a most eager and original mind, physiology alone can read the occult significance. In acute pancreatitis there is, as Halsted,[7] a great benefactor of mankind, first told us, a lividity of the face. Why? Is it due to some disordered action of the respiratory system imposed by the closeness of the affected organ to the diaphragm and the structures which lie above it, or is there circulatory stasis, or alteration in the blood pigment?

Physiology is the master of all the methods by which these three possible causes may be quantitatively investigated Estimations of the oxygen saturation of the arterial blood give information of disturbance of respiratory function: information which we may compare to that derived from a measurement of the amount of blood-urea when the renal functions are deficient Estimations of the carbon dioxide combining power of the blood are essential if we are to recognise the presence and the degree of acidosis Circulatory stasis may be gauged by the ethyl iodide method of measuring the circulation rate. Alterations of the blood pigment are detected by the spectroscope and quantitative estimations of abnormal pigments are readily made after the method of Hartridge.

Like the physiologist the bacteriologist is engaged in work which is ranged alongside our own The more he discovers of the offensive powers of bacteria and of the defensive mechanism of living flesh under their attack, the nearer are we brought to our surgical ideal. The alliance between bacteriologist and surgeon has been necessary for the proof that the true estimate of an antiseptic is not measured only by its bactericidal value tested in the laboratory, but also by its power to encourage the blood serum or the tissues themselves to ward off and to break up an attack. Hunter, with the crude methods which were all he had at his disposal, demonstrated the tryptic power of wound discharges and anticipated a part of the admirable work of Almroth Wright during the war. Who could have imagined, when Lister's work began, that to-day we should be able to keep tissues alive in our laboratories, breeding them and growing them in captivity, separating the one kind *from the other*, noting the influence which one type of cell is able to produce on its neighbours and thus coming by the kind of knowledge which John Hunter so earnestly sought, a knowledge of the intrinsic processes of growth and repair? The problem of malignancy is now installed in our laboratories, and the cancer cell is being compelled to yield most reluctantly some of the complex secrets of its bolshevist behaviour

The old art of vital staining, which Hunter learnt from Belchier, of Guy's, has taken on new improvements; by means of suitable dyes we can now select special elements in the living body, trace their movements and note their conduct The experimental embryologist, too, can help us if we seek to know in what manner the various tissues of the body come into existence

These, then, are the allies of surgery in the Great War: biology in all its branches, chemistry, physics, radiology. Never before has the master surgeon had such bountiful resources at his disposal. He cannot afford to neglect a single one of them. The urgent problem of our time is therefore a dual one We must seek to determine the line of advance which surgery will trace in the years ahead, increasing and strengthening our alliances; and we must earnestly discover how the leaders of our army of advance are to be trained. Are the old methods which in their day served so well still enough, or is the form of warfare already so changed, and now so rapidly changing that a new discipline and a wider knowledge are needed?

HUNTER AND LISTER

To answer these questions we must look backward, and, calling upon our past experience, seek in the records of our great masters not so much what their knowledge was, but what methods they pursued as they qualified themselves for great leadership We shall find at once that Hunter and Lister, incomparable among surgeons, each put himself through a long and arduous training, never resting in his inquiries as to the activities of living matter, as to its behaviour in health and its reactions in disease. At the threshold of our survey we recognise that the activities of our two leaders are not unrelated. Hunter's professional life covered the latter half of the eighteenth century, Lister's the corresponding half of the nineteenth century; between them there intervened two generations of surgeons. My distinguished predecessor, the late Sir Rickman Godlee, who gave this oration in 1913 tells us in the life of his uncle Lord Lister[8] that, "Hunter was Lister's greatest hero," that "his copy of Palmer's life of Hunter was marked in many places by pencil notes which show that he was studying it at least as early as 1855," that "a proof of Sharp's engraving of the portrait of Hunter by Reynolds which had belonged to Syme, hung in his study," that "he always spoke of Hunter with reverence." Further, if we turn to the paper[9] which Lister read to the Medico-Chirurgical Society of Edinburgh in March, 1858, on the "Causes of the *Coagulation of the Blood*" we find evidence of his early admiration of Hunter. "The nearest approach," he wrote, "which I have been able to find to such an observation (that blood which is retained in the smaller veins of the body remains uncoagulated) is contained in that inexhaustible treasury of original observations and profound reflection, the works of John Hunter."

If I may borrow a simile from the football field to express the relation of these two great men I would say that it was Pasteur who made the final pass to Lister possible, it was Hunter's captaincy in the scrum that placed Lister in the scoring position. Indeed, we have to admit that while Hunter's resource in midfield has never been excelled, or even approached, and though the ingenuity with which he worked the surgical ball towards the goal remains unsurpassed yet when he was in a scoring position and we are counting so confidently upon a "try," the ball is fumbled and our hopes are foiled. The young surgeon of to-day can learn almost as much from Hunter's mistakes as from his triumphs

The Career of Work of John Hunter.

Let us now examine the discipline to which John Hunter submitted himself to attain his leadership. He is the "Dick Whittington" of British surgery. In September, 1748, at the age of 20, he left his home, an upland farm in the parish of Kilbride, eight miles to the south of Glasgow, and travelling on horseback he entered London in a little under a fortnight, alighting in Covent Garden where his brother William kept a school of anatomy William Hunter was beyond doubt the foremost medical teacher of his time, his best pupils caught from him the spirit of research. Among his inspired disciples were John Hunter, William Hewson, William Cruickshank, Charles White of Manchester, and William Hey of Leeds, the founder of the Leeds Infirmary, the first stone of which was laid in 1767 by Edwin Lascelles, the first Lord Harewood In 1751, after three years of study, John Hunter counted himself a qualified surgeon, he remained in his brother's school to teach and to research, at what salary we cannot now tell, but assuredly it was a small one John Hunter thus entered the critical years of his life, for the career of a young surgeon was determined then, just as it is to-day, not so much by his conduct during the years of pupilage, as by the use made of the period after qualification The problems which a young surgeon first attacks, and the methods he employs to solve them, are suggested to him by the age in which he lives and by the school in which he has been trained In John Hunter's youth a knowledge of the human body was being extended by a skilled use of the art of injection And so we find him in his earlier years following arteries to their ultimate termination, tracing the course of lymphatic vessels, unravelling the structure of the testis and the kidney by means of an expert use of the injecting syringe and of the hand lens He remained in his brother's school teaching and researching until the spring of 1761 when he entered his thirty-fourth year

Here is a list of the subjects he investigated during that period He began to note the earliest stages in the developments of the chick[10] and continued this study to the end of his life, deriving from it guidance for the interpretation of the phenomena of repair and of disease We find him exposing the thoracic viscera, using artificial respiration and noting accurately what happened to heart and lungs when the air-supply was withdrawn and when it was renewed [11] He studied respiration in birds, keeping cocks alive which breathed through their cannulæ inserted in their air sacs instead of through their windpipes [12] He carried out a series of experiments on absorption from the bowel in various animals, the experiments were well planned and skilfully executed, but he drew from them a wrong inference, one which misled him subsequently time after time in the interpretation of the processes of disease He believed that these experiments proved that all the products of digestion were absorbed by the lacteal or lymphatic system and that none entered by the veins [13] Our hero, as we have seen, was often weak when he approached the goal posts We find him tracing out the distribution of nerves in the nose and giving, for the first time, the right explanation of why the fifth pair of cranial nerves should enter into the field of mucous membrane supplied by the olfactory nerves [14] The description he then gave of the descent of the testis [15] and of the vital phenomena which attends that still mysterious operation has never been surpassed He kept a tame kite to prove that a stomach accustomed to a flesh diet could be educated to deal with one which was purely vegetarian, he noted the phenomena of digestion in the stomachs of fish, fowls, dogs, he explained post-mortem destruction of the stomach [16] He placed pieces of raw meat in suppurating wounds and observed the digestive effects which followed, he measured the digestive (or tryptic) action of pus [17] We find him deeply interested in the formation of pus upon the unbroken surfaces of serous and of mucous membranes He began a series of observations on the uses of the vesiculæ seminales [18] and was led thereby to investigate experimentally the potent and mysterious influence which testis and ovary exercise on the development and growth of the body [19] We find him seeking signs to distinguish between tissues in which life was latent and those from which life had already vanished He believed he had discovered the organ of hearing in fishes and sought to discover an explanation of the curious fact that the ovaries of eels were always destitute of ova

As a collector, like Pascal a "ramasseur de coquilles," who often found a pearl of great price, as an observer of incredible industry, gathering facts just for the sake of their individual value and without at the moment any care for their relative significance, for the effect of their impact upon other facts, he ranks second only to Hippocrates But when these facts were stored in his mind and illustrated by a series of specimens, he was by no means inexpert in their interpretation or in raising a general truth from a multitude of singular examples But as we read we seem to be oppressed by the verbal difficulties he encountered The words will not come Even the constructive thoughts may sometimes appear to be absent, puny, or unmanageable He cannot get his mind round them, if by chance we think that he has done so, the splendour of his thought is disfigured by his uncouth language Abernethy is not alone in telling us of Hunter's paucity of language and of his inaptitude in its use; but we need no other evidence than that which his own works rarely fail to give use His letters are the same Illiteracy is not absent from them, though their meaning is often clear enough, especially when express instructions are given It is when Hunter endeavours to rise to abstract generalisations that we see this incapacity chiefly and lamentably displayed Obscurity of language, I believe, even in abstract matters, often means obscurity of thought Words may come after thought, but not long after surely Hunter's defects in language were due in part, no doubt, to the absence of any early education of value, but they were not lessened by his studious avoidance of the work of others His rebuke to Jesse Foot, as brutal and irrelevant as many of Johnson's, would have confounded anybody, but it is irrelevant nevertheless, and it was a confession of his own imperfection

After spending fully 12 years experimenting, John Hunter in the spring of 1761 and in the thirty-fourth year of his age, engaged in the practical work of his profession and was appointed surgeon to the army In the summer of 1763 he returned to London on half pay and commenced practice He bought "a piece of ground called Earl's Court, near the village of Brompton, and two miles from Hyde Park Corner" on which he built a small house Earl's Court, his week-end cottage, was soon converted into a zoological garden and experimental laboratory, many new problems engaged his mind and several avenues of investigation were opened up there, all of them were made to converge on the same subject—the behaviour of living matter under all conditions It was not until 1768, when he was 40 years of age, that his private practice began to grow, enabling him to take a lease of the house, 42, Jermyn-street, vacated by his brother William We may now consider him, after an apprenticeship of 20 years, fairly launched in practice Three years later he considered that his income justified him in undertaking the responsibilities of marriage

We see, then, this leader of surgery of the eighteenth century devoting 20 years of his life to arduous observation and experiment so as to qualify himself for the practice of his art There has probably never been a man in our profession with so wide an intellectual interest, so profound a knowledge of so many varied subjects wholly derived from direct personal inquiry and observation His industry was inexhaustible He had no equal either as physiologist or pathologist, he was already first among comparative anatomists, and was indeed one of the founders of this science He was a naturalist, all subjects in animal and vegetable physiology seeming to attract him All his unequalled attainments as biologist were brought to the service of surgery, in his hospital work, and finally in the largest private practice of his day. Before Hunter's time surgery was a thing apart, independent of all other sciences, ostentatiously aloof from them, and governed only by the experiences and aptitude gained in the day-to-day practice of the art All advance was therefore slow, even when recognisable, and was largely empirical. No physiological knowledge, nor any experimental discovery broadened the old path, or opened up new ones Hunter changed all this Not the least of his achievements was that he made alliances for surgery, and linked it inseparably with biology. Hardly a day passed without some experiment I may quote a statement of his to show how he regarded experiment [20] "In pursuing any subject, most things come to light by accident, that is, many things arise out of an investigation that were not at first conceived, and even misfortune in experiment has brought things to our knowledge that were not, and probably could not have been conceived, on the other hand, I have often devised experiments by the fireside or in my carriage, and have also conceived the result, but when I tried the experiment the result was different, or I found that the experiment could not be attended with all the circumstances that were suggested" This statement helps in some degree to explain the number of apparently unrelated subjects which Hunter explored in his younger years As he opened a new subject he still continued to investigate the old, at the time of his death he had over 50 portfolios in use, each relating to a particular line of investigation

The "misfortune in experiment" has its counterpart in operative surgery An interesting little paper might be written on the Advantage of Error in Medicine We may recall Spencer Wells's operation for an "ovarian cyst" when tuberculous ascites was found, and the surgical treatment of peritoneal tuberculosis inaugurated The same distinguished surgeon, a pupil of the Leeds school, operating upon a *jaundiced girl of 18* for "fibroid tumour of the uterus," discovered that the tumour was not pelvic but splenic; he removed the spleen; in a few days the lifelong jaundice was gone, and the surgical treatment of hæmolytic jaundice was *begun* So McGill, the pioneer in the operation of prostatectomy, precedence in which is so foolishly claimed for others, removed what he believed to be a "tumour at the base of the bladder" When I, acting as his house surgeon, examined the tumour microscopically and found that it was prostatic, I felt that I had the chance to twit my beloved chief with his error His reply, when I told him of his mistaken diagnosis was, "Then why don't we always take the prostate out when it projects into the bladder"?

The Career and Work of Lister

When we compare Lister's preparation for professional leadership with that of John Hunter we are impressed rather by the resemblance than by contrast Lister, the greatest material benefactor of mankind that the world has ever known, began his medical studies at University College, London, at the age of 21, in 1848, exactly a century *after* John Hunter had settled down to his work in Covent Garden In the hundred years that had passed medical education in London had undergone a revolution, voluntary schools had almost disappeared, to be replaced by the organised schools and colleges with which we are familiar to-day John Hunter was Scotch, Lister English, his ancestry coming from Yorkshire and Cumberland John Hunter owed much to his brother, Lister still more to his father, who was not only a successful man of business, but also a Fellow of the Royal Society William Hunter, who impregnated the mind of his brother, drew his own inspiration and owed his intellectual guidance to the Munro-Cullen school of Edinburgh Lister was early influenced by William Sharpey and by Wharton Jones both Edinburgh men, steeped in the traditions of this very school After qualifying in 1851, and taking the Fellowship of this College at the age of 25, Lister's first research was begun; it was concerned with the contractile tissue of the iris [21] The injection syringe, the new instrument which had served Hunter so well, had been displaced during Lister's youth by the microscope We rejoice, nevertheless, to notice that when Lister applied this new instrument to the tissue of the iris it was the function rather than the form of this structure which excited his interest In this investigation and in another,[22] begun in 1852, "Observations on the Muscular Tissue of the Skin," we recognise that, influenced by William Sharpey he had become familiar with discoveries made in other countries, notably with those of Kolliker in Germany But clinical work was not forgotten, and a house surgeoncy at University College was followed by perhaps the most critical event of Lister's life In tracing the motives which have directed the progress of medicine we are constantly reminded of the influence and the power of great teachers Such men are gratefully remembered by posterity, not so much for the work which their own hands or minds have created or have modified, not for their written words which so soon seem to possess little more than an antiquarian interest, not for their spoken words which, though at the moment of their delivery they may walk up and down in the hearts of men and stir them to new thought or to great action, yet seem so frail and cold and lifeless when the morning comes, not for any of these, but for the spiritual legacy they bequeath to those inspired by their own zeal and trained in their own methods to seek the truth in eternal principles It is this which gives posthumous life, the true immortality

Not the least of the claims that John Hunter makes upon our reverence is that he was the first founder of a school of surgery He was not distinguished as a teacher "He had not the happy talent of displaying the stores of his mind, nor of communication to others the same perception of the importances of his facts and opinions as he himself entertained" [23] Abernethy said his language was "inelegant and often coarse," "his delivery heavy and unengaging," "his method confused with attempts to find words for thoughts, or else to read from little scraps of paper" Yet despite these unattractive or even repellent qualities, men who themselves influenced surgery for generations afterwards, whose influence still survives, Abernethy, Astley Cooper, Cline, Everard Home, Blizard, all boasted of being his pupils, and taught his method until it became, and still remains, a tradition in their schools and from them has spread to every school of medicine in the world where Hunter is recognised, unchallenged, as the founder of scientific surgery My old friend, Dr Finney, of Baltimore, in his recent address before the Hunterian Society, an address containing much information new to us in this country, speaks eloquently of the germinative influence of John Hunter upon American surgery. He tells us how John Morgan and William Shippen, the founder of the first medical school in America, from which the present medical department of the University of Pennsylvania descends, were "much influenced" by John Hunter, and he adds "so virile and dominating was his influence that it may readily be recognised and transmitted like other distinguished hereditary traits" And again, "The seed sown by John Hunter is being continually replanted and perpetuated by succeeding generations" in America Finney quotes Dr Welch, the intellectual parent of so many sturdy sons, as saying of the "Father of American surgery," "Physick was almost as much a mouth-piece of the doctrines of John Hunter in America as was Abernethy in London" In his "Surgical Memoirs" J G. Mumford writes "The best American surgery grew out of English surgery with Hunter as its prophet" Hunter was the lodestone which attracted men who proved to be the pioneers of surgery in that great country where our Art is *practised* by its highest exponents with unsurpassed skill and safety Mumford no doubt remembered that the first professor of surgery in his own University of Harvard was Collins Warren, distinguished son of a distinguished father, a pupil of Astley Cooper, himself the chief of Hunter's disciples, and a teacher who drew men to him from afar So, in like manner, the debt we owe to Italy must forever be acknowledged when we remember that it was the magnetism of Fabricius that drew the youthful Harvey to Padua But for Fabricius and the magic of his work the discovery of Harvey, the great glory of English medicine, might not have been made for generations

William Sharpey, whose lectures "inspired me with a love of physiology that has never left me," had not only Lister's future, but also all that this meant for mankind in his own hands when he sent Lister to Edinburgh to the "safest surgeon" of his day, James Syme It was an almost incredible exodus When the Hunters came southwards they followed a national habit established for centuries, and never permitted to fall into disuse a habit which incited the characteristic invective of Samuel Johnson When Lister went northward he founded a new tradition and made a novel breach in a custom which seemed to have become as firmly accepted as a law of nature Lister's most distinguished successor in his chair of clinical surgery, my old friend Harold Stiles, made the same adventure, to Scotland's great advantage.

London hardly notes and seems but little disturbed by the arrival and the progress in her midst of young medical men from Edinburgh (Whatever would she do without them?) Edinburgh, one may suspect, raised her eyebrows when she saw a young doctor from London established as Syme's house surgeon, and she must have rubbed her incredulous eyes when, within two years, she saw him become an extramural lecturer in surgery within her own stronghold It is quite impossible to exaggerate the importance of this teaching appointment on Lister's future He met his students—the ultimate number in his first class was seven—on Wednesday, Nov 7th, 1855 Lister believed, as Hunter had believed, that the beginning of surgery was a knowledge of the process of inflammation; and accordingly he had resolved before his lectures commenced to obtain a new first-hand acquaintance with inflammatory processes as watched in living tissues Clearly he realised long before the humblest of his intellectual descendants the need to study the "pathology of the living" A frog was caught in Duddington Loch; surely the greatest frog in history, honoured by being made the subject of this research Why did not someone suggest to Lister when he was granted Arms that this frog should be immortalised in heraldic device? The web of this frog's foot gave all the necessary opportunities for the inquiry Lister had many new advantages over Hunter; he knew that the tissue he examined was made up of living units—cells! He had at his disposal a powerful microscope, which could mark the behaviour of these cells; and Claude Bernard, in 1853, had taught him the existence of vasomotor nerves. It was during the examination of the frog's web that Lister made a biological discovery of the highest importance—one which experimental biologists are still exploiting—that pigment-containing cells, such as are seen in the frog's web, give more easily visible, and more delicate, reactions than any other kind of living cell when subjected to a physiological or a pathological stimulus This quality enabled him to study the effects of inflammation in terms of individual cells He was able to prove that these pigment cells still gave vital responses 15 days after the leg had been amputated

The list of researches carried out by Lister between the time of his arrival in Edinburgh in 1853 and his appointment to the chair of surgery in Glasgow in 1860 would almost suggest that he was seeking to fit himself to become an experimental physiologist or pathologist rather than a surgeon I would earnestly emphasise this point, for its significance in Lister's day was far less that it is to-day when the full harvest of his work is ready to be gathered In most of these researches we can clearly see the strong influence of John Hunter. It is not accident surely that the men who have done most for surgery trained themselves rather as research workers than as practitioners, that they revelled in and set out to master one problem after another in biology. Lister's acknowledgment of the immense influence of Hunter upon him is not in the least overstrained If the spirit of Hunter watches over his museum and this College, as we hope it may, how infinite must be its pride in the thought that the one man greater in service than Hunter himself was his direct intellectual offspring

Let me recall the names of a few of Lister's early papers: That "On the Flow of the Lacteal Fluid in the Mesentery of the Mouse,"[24] begun in 1853 and published in 1857, is a direct extension of Hunter's experiments on absorption,[25] the communication on "The Persistent Vitality of the Tissues"[26] is founded upon observation made by Hunter himself on the same subject The studies on "Coagulation of the Blood" began by observing what happened in the veins of "sheeps' trotters" taken from the shambles By devising new and critical experiments he was able to carry the knowledge concerning coagulation to a point far beyond that which Hunter had reached a century before him Yet his methods were clearly modifications of theirs Lister's vocabulary, indeed, was still that of Hunter, for he spoke of the "solids" of the body, of "preternatural stimuli", of the "disposition of the tissues"; of "inherent tendencies", and of "sympathetic irritation"

The events which followed Lister's arrival in Glasgow are too well known to all the world to need more than the briefest recapitulation Lister was then 33 years of age, almost the same age as Hunter when he joined the army as a surgeon As a result of seven years of a preparatory experimental investigation, conjoined with a wide clinical observation which was closely related to it, he had become immersed in all the problems relating to inflammation and suppuration He had already formulated a hypothesis that suppuration was due to putrefaction and in 1865 was ready to put his supposition to a practical test Pasteur's epochal discovery that putrefaction was due to "germs" set matters going Lister wrote[27] —

> "To prevent the occurrence of suppuration, with all its attendant risks, was an object manifestly desirable, but till lately apparently unattainable, since it seemed hopeless to attempt to exclude the oxygen, which was universally regarded as the agent by which putrefaction was effected But when it had been shown by the researches of Pasteur that the septic property of the atmosphere depended, not on the oxygen or any gaseous constituent, but on minute organisms suspended in it, which owed their energy to their vitality, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles"

Lister was first of all concerned with the destruction of organisms after they had obtained access to wounds He knew of the experiments with the Carlisle sewage, and of the bactericidal properties of carbolic acid He observed carefully the effects produced upon living tissues by antiseptics and concluded that the reparative processes in a wound were not thereby weakened We are apt, however, to forget the gradual change that came over Lister's views, and the effect this had upon his practice, how he came to a full realisation of the essential powers of defence possessed by the living tissues, and of our obligation to protect and, if possible, to increase them Sir Rickman Godlee, who knew more of Lister than any man, has written that Lister before 1881, when he first told the world of his changed opinions,

> "had long recognised and taught that healthy living tissues exercised an inhibiting influence on the growth of micro-organisms He therefore began to wonder whether, if only slightly damaged, for example by the incision made by a very sharp knife, the living tissues of any wound might not be able to deal with a certain number of germs by their own efforts"

This we gleefully observe is a return to Hunter's work in which he recognised the "powers," "disposition," and " action " of living tissues. It may not be inappropriate to quote Lister's own words. He writes [28, 29] —

> "The original idea of the antiseptic system was the exclusion of all microbes from wounds " Again, " During the operation to avoid the introduction into the wound of material capable of inducing septic changes in it, and secondly, to dress the wound in such manner as to prevent the subsequent entrance of septic mischief " Again, " In wounds already septic, attempts are made with more or less success to restore the aseptic state " Again, " In speaking of the antiseptic system of treatment, I refer to the systematic employment of some antiseptic substance so as entirely to prevent the occurrence of putrefaction in the part concerned, as distinguished from the mere use of such an agent as a dressing", and further, " I always endeavour to avoid the direct action of the antiseptic substance upon all tissues "

The distinction between the preventive and the curative use of antiseptics is in many respects that existing between, on the one hand, the power of a germicide as determined by experiments in vitro, and, on the other hand, its capacity to destroy organisms when it is introduced among the living and the dead tissues of a wound In the former there is a direct conflict, a clean fight, between the microbe and the chemical agent Few or none of the many intervening conditions are present which have to be considered when a bactericide is introduced into a wound cavity wherein there are multitudes of actions and reactions which even now seem very obscure and are so often conflicting.

HUNTER'S ANTICIPATION OF MODERN PROGRESS

We may, therefore, regard Hunter and Lister as bridge-builders , it is out of a multitude of scientific observations, of apposite inferences, and of wide generalisations that such bridges are built, stone by stone, arch by arch Posterity will perhaps remember only the one bridge, permanent, indestructible, all sufficing, of Lister Across that bridge we have swarmed, a triumphant host, and a vast new territory has met our almost incredulous eyes Hunter was forever building bridges, ambitious in design, firm in their foundations, but always left unfinished Some day new architects will come and given them the full span which Hunter surely meant them to have It is remarkable to note how often he anticipated the lines along which we see that modern surgery is making its advance. Cultures of both benign and malignant tissues are now being kept alive by methods which, devised by Dr Ross G Harrison while studying the growth of fibres from the nerve-cells of a tadpole, have been rapidly developed by Alexis Carrel John Hunter, too, tried his hand at experimental embryology He " exposed the little animal (the chick embryo) by putting it into water heated to about 104° F just covering the egg " and " hoped to keep it alive by these means and observe in the same chick the whole progress of growth, but it soon died "; therefore, he says, " I was obliged to have recourse to a succession "[30] He was an experimental surgeon, as may be shown from the following quotation[31] from one of his lectures :—

> " Here is the testicle of a cock, separated from that animal and put through a wound, made for that purpose into the belly of a hen, which mode of turning *hens* into cocks is much such an improvement for its utility as that of Dean Swift when he proposed to obtain a breed of sheep without wool The hen was afterwards killed and the testicle was found adhering to the intestines, as may be seen in this preparation where the parts are preserved."

He devised and carried out experiments to ascertain whether the growth in a cock's spur is due to a " disposition " inherent in the spur or derived from the constitution of the cock He excised spurs from the legs of cocks and implanted them in their combs to note the rate of growth under such unfamiliar surroundings. The first vital stain ever used was madder , it was introduced to the notice of biologists in 1764 by John Belchier, surgeon to Guy's Hospital by its experimental application John Hunter revolutionised our knowledge of bone growth and bone decay.[32] In the hands of Prof A V Hill the measurement of heat in living tissue has become the most delicate and certain indication of the nature of their vital reactions The manner in which living matter reacted to the application of heat and cold, and the degree of heat generated in living tissues, Hunter made the subject of an endless number of investigations, all with the practical view of ascertaining how much or how little should be done to keep damaged human tissues alive [33] He was, as we have seen, an experimental physiologist and also an experimental pharmacologist [34] He was psycho-analyst[35], he tried to inoculate an ass and a bitch with the virus of syphilis.[36] He preached the doctrine of operating at the earliest possible stage of a disease, and placing himself in the position of the patient said, " Nor do I go further than I now think I would have performed on myself were I in the same situation "[37] He performed experiments on the sensitive plant which are now being repeated [38] These are only some of the points in which Hunter has anticipated modern progress

VISIONS OF THE FUTURE

So much for the past in its relation to our greatest men What of the future ? Looking forward I humour my fancy and indulge my dreams Imagination, Keats tells us, may be compared to Adam's dream—he awoke to find it truth The art of the surgeon is the pillar of his science, and it is for science to discover how that almost perfect art may now be used to the fullest advantage We eagerly await the day when disease shall not require to be checked in high career, but shall be blighted at its origin, or even denied existence, when our weapons of war shall be laid aside. That day may yet be far away, but already beyond the distant hills we see promise of the dawn It does not perhaps so much or so deeply concern ourselves as those who soon must take up our task, and lead the hosts whose victory shall attain our high ideal In due time, and in accord with ancient precedent, this country of ours, the fruitful mother of so many gifted sons, shall raise up in our schools the youths who shall go forth to conquer a crown They will be best equipped who keep to the course, recall the methods, and are imbued with the ardent spirit of the two famous men whom we praise to-day, the two greatest surgeons the world has ever known

Our youths must be prepared for self-sacrifice, for arduous discipline, perhaps for the most heart-breaking rebuffs, for the stern or even bitter criticism of their fellows But there never was a time so rich in promise, so laden with rewards for those who labour with sincerity and truth. They will not travel alone. The whole army of science is in league with them, moving forward with incredible speed, eager to lay at their feet the triumphs of its astounding conquests The responsibilities which rest on them, the intellectual accomplishments, and the dedication of their lives demanded of them, are enough to cause the stoutest heart sometimes to falter. Yet, armed with the sword of the spirit and the breastplate of faith, they will remember that the happiness of life lies in its responsibilities, that true joy is found in the quest for what may after a weary journey prove unattainable Ahead lies the noblest of tasks to which they may consecrate themselves . for the lives of men are in their hands, the love, the happiness, the whole welfare of mankind We need not fear They will be worthy of their charge. God counts not result but effort

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(*Continued at foot of next page*)

SOME OBSERVATIONS ON THE DIAGNOSIS OF HEPATIC DISORDERS.

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The administration of galactose as a means of diagnosing liver abnormalities and also for estimating liver efficiency has been largely confined to German clinics Like glucose, it is a monosaccharide, and is absorbed direct via the portal circulation into the liver In health the ingestion of 40 g results in no hyperglycæmia, and no galactose appears in the urine, as the glycogenetic capacity of the liver in health is sufficiently powerful to transform the ingested sugar into glycogen with the passage of but small amounts into the peripheral circulation, and in consequence only a small increase, if any, in the blood-sugar value It must, however, be administered in a pure state before any reliance can be placed on the results obtained.

As early as 1906 Bauer[1] suggested the use of galactose, and Brasch[2] in 1908 gave a review of the earlier literature, pointing out that galactose builds up glycogen and that it is absorbed uniformly from the alimentary tract In 1918 Kahler and Machold[3] made elaborate investigations on the value of galactose. They found that normally there is less than 30 mg. per 100 c cm. difference in blood-sugar at the end of one hour after ingestion of the sugar, and that the maximum difference of over 100 mg. was obtained in cases of catarrhal jaundice They came to the conclusion that it has yet to be established that galactosuria and hyperglycæmia are of any service in estimating hepatic efficiency other than derangement of the hepatic control of carbohydrate metabolism. Their practice was to estimate the blood-sugar one hour after the ingestion of the sugar and to obtain in grammes the amount lost in the urine It is significant that they obtained negative results in cholelithiasis, and that syphilitic hepatitis yielded markedly positive figures

Richard Bauer[4] in 1924 gave a very detailed account of the necessary precautions as regards purity of the sugar, &c , its advantages and its limitations This observer placed reliance on the urine only—on the amount of sugar lost during the four hours following ingestion But Kahler and Machold pointed out that there is often galactosuria with no rise in blood-sugar, and especially is this so in renal-leak cases Taken alone, the amount that has escaped in the urine becomes too unstable a guide to liver efficiency Rowe[5] in 1924, working on the metabolism of galactose, believes that the dose is little influenced by age, weight, or body area. “ It is found to be apparently directly dependent on sex, and influence of mammary glands is suggested as a possible explanation ” The female, he says, is able to tolerate more than the male. There may be some evidence to support this statement, which should be remembered when the liver efficiency of pregnant women is tested

The German observers have attempted by a study of the sugar to estimate the degree of liver damage and even base their prognosis on it alone, and Bauer says “ galactosuria is often the only positive sign of abnormal liver function ” It is certainly misleading to depend on the urinary findings, as the threshold for galactose is not at all definite, and traces appear in the urine of the majority of healthy people Even the blood values cannot, if taken alone, be always helpful. Indeed, they may be misleading In this paper some evidence is offered to show that the galactose test, taken in conjunction with other simple tests, will prove to be a help and guide in distinguishing various cases of jaundice It is not specific, and no interpretation should be based on it alone Not only is a negative result obtained in normal cases, but also in those cases of jaundice, however deep, which are mechanical in origin A stone in the duct, a carcinoma of the pancreas, enlarged glands at the hilum, all produce the same negative result provided no change has taken place in the liver cell itself. Their glycogenetic power is unimpaired—an activity which depends upon a healthy liver cell If in any of these cases known to be mechanical in origin the result turns out to be positive it signifies that some damage has already taken place in the parenchyma R Bauer in his paper warns the surgeon who performs cholecystectomy that if the galactose test is positive in such a patient chloroform must not be used, as a further cellular intoxication may flare up a fatal hepatitis which was smouldering before the operation

During the investigations on which this communication is based it was customary in all cases presenting jaundice to examine the blood for the following bilirubinæmia, by the Fouchet and van den Bergh tests, estimation of cholesterol content of the blood, and the galactose tolerance test The urine was also examined for bile salts and pigments and urobilin In some cases the bromsulphalein test was also performed By the summation of these tests one could arrive at a conclusion with some degree of assurance whether an icterus was obstructive, intrahepatic, or extrahepatic, a conclusion which many regard as being very simple clinically. This is true of jaundice in the late stages of obstruction, but, while clinically indefinite in the early stages, one can show definite laboratory changes by these tests even then Again, clinical conditions are never cut and dried There is some degree of obstruction in all toxic cases, and there is some hepatic cellular damage in all prolonged mechanical cases blurring the diagnosis, so that if we obtain by a series of tests a real knowledge of the dominant factors, this may be a real and timely help

The Galactose Technique

The sugar should be tested beforehand for its rotatory power, which should be at least a specific index of 76° Less than that amount indicates too large a degree of impurity Forty grammes are dissolved in about 400 c cm of water and given to the fasting patient, whose resting blood-sugar has been taken immediately before The sugar is estimated in the blood every half hour for two to three hours afterwards The urine is also collected up to the fourth hour and the amount of reducing substance present estimated This is the amount lost out of the 40 g ingested Alone, this observation on the urine is open to many errors, as the threshold varies enormously in normal people, while in nephritic cases the kidney may entirely fail to excrete it However, in people whose blood is difficult to obtain the amount in grammes lost via the urine is a rough index of the hepatic damage, provided that there was no sugar present in the urine before giving the galactose In diabetes the test is, of course, valueless Again, if much ascites be present, it has been shown that the absorption of the sugar via the alimentary tract may be delayed, and the sugar still excreted even for five to six hours following the ingestion If the sugar in the urine is estimated by means of a polarimeter, as the sugar is galactose, a correction

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Hunterian Oration References

(*Continued from previous page*)

11 Works of John Hunter, iv , 169 12 Ibid , iv , 181
13 Ibid , iv , 299 14 Ibid , iv , 187 15 Ibid , iv , 2
16 Ibid , iv , 119 17 Ibid , iii , 442 18 Ibid iv , 20
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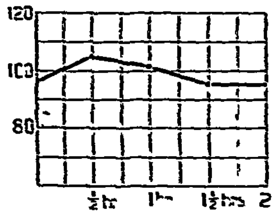
20 Observation on Bees, Works, iv , 422
21 Collected Papers of Lister, i , 1 22 Ibid , i , 9
23 Paget Hunterian Oration, 1915, p 46, 49
24 Collected Papers of Lister, i , 515 25 Ibid , i., 25
26 Works of John Hunter, iv , 299
27 Collected Papers of Lister i , 85 28 Ibid , ii , 37 29 Ibid , ii , 51, 340, 349, 365
30 Essays and Observations, i , 206
31. Works of John Hunter, i , 391 32 Ibid , iv , 315 33 Ibid , iv , 131, 156 34 Ibid., i , 348, 350 35 Ibid , ii , 307
36 Ibid , ii , 151 37 Ibid , i , 548, 549
8 Essays and Observations, i , 357

must be made since its rotatory power is 82° compared with 56° for glucose. If the amount is multiplied by ⅔ the result approaches accuracy.

Normal.

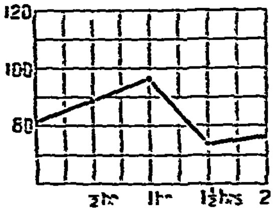
The ingestion of 40 g. of galactose does not result in an increase of the blood-sugar in normal persons Chart 1 shows the blood-sugar values in such a person. There may be some slight increase, but in any case it is never greater than 30 mg. The urine contains always less than 1 g. in the three hours

CHART 1



Showing blood-sugar values in normal persons after ingestion of 40 g of galactose

CHART 2.



Galactose test The curve obtained in carcinoma of the pancreas with obstructive jaundice

Bauer tabulated his urinary findings as follows: Normal. 0–1 g.; high normal. 1–2 g; positive, 2–3 g; high positive. 3–12 g. The greatest loss that has been observed in this series is 6 5 g

Jaundice of Mechanical Origin.

Mechanical causes of jaundice also yield a negative result, provided that the jaundice has not been prolonged Chart 2 shows the curve obtained in carcinoma of the pancreas in which the jaundice is obstructive

M. C Obstructive jaundice. Carc. pancreas. Fouchet test strongly positive; van den Bergh. direct reaction immediate, cholesterol. 212 mg per cent.

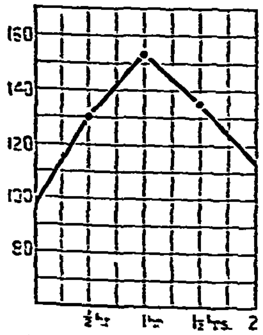
Galactose tolerance test. (40 g. given):—

		mg per cent.
Blood-sugar before administration	..	83
„ „ ½ hr after „	..	88
„ „ 1 „ „ „	..	98
„ „ 1½ „	..	72
„ „ 2 „ „ „	..	75

0 8 g. of galactose appeared in the urine during the following four hours.

Bile salts and bile pigments: positive. Urobilin: negative Diastase: 28 units. Fæces: total fats 54 g per 100 g dried fæces. Fatty acids 28 g per 100 g dried fæces. Bile pigment absent from the fæces.

CHART 3



Galactose test in a case with obstructive lesion, but showing some intolerance

Although the patient was emaciated to a great degree, and the jaundice was intense and of over a month in duration, the glycogenic function of the liver as judged by this test was intact.

In a certain number of cases in which the main findings point to an obstructive lesion the galactose test may be positive. This is true when the liver itself is riddled with secondary deposits from a malignant growth which itself is causing the main obstruction. Chart 3 shows this condition—the massive secondary deposits causing pressure on and ultimately destroying a large portion of the liver parenchyma.

H P. Jaundice, 14 days loss of weight two years. Fæces pale Urine dark van den Bergh: immediate direct Fouchet: strongly positive: cholesterol: 186 mg per cent

Galactose tolerance test:—

		mg per cent
Blood-sugar before administration	..	99
„ „ ½ hr. after „	.	130
„ „ 1 „ „ „	..	151
„ „ 1½ „ „ „	.	135
„ „ 2 „ „ „	..	111

Urine contained 2 3 g of galactose during the following four hours

Diastase: 28 units; bile salts and bile pigments: positive; urobilin: negative.

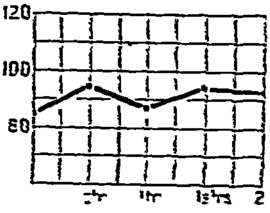
In this case the dominant clinical and laboratory findings pointed to an obstructive type of jaundice. but the somewhat positive galactose test was later substantiated by the autopsy, showing large secondary carcinomatous deposits in the liver tissue itself.

If the cause of the jaundice is known, such as a stone in the duct, and the patient yields a very positive result this signifies that there is some derangement of the liver parenchyma and this may explain many cases which do not progress rapidly after cholecystectomy, &c. The test can, therefore, be of value in signifying the state of the liver prior to and after a biliary operation

Extrahepatic Jaundice.

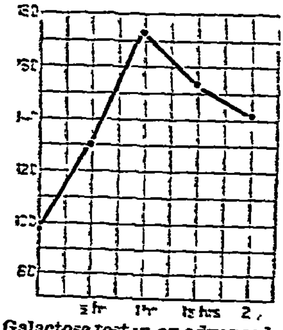
Negative results are not only obtained in mechanical cases, but also in extrahepatic cases of jaundice, such as pernicious anæmia, which indeed is a true hyperbilirubinæmia also acholuric jaundice and in those cases of jaundice which develop after a hæmothorax or hæmoperitoneum. It is in these types that one is so anxious to know whether an infection has occurred and if the liver is involved—a complication which would be followed by a disastrous prognosis—and it is in these types that the galactose test is equally negative giving proof that the liver cell is not involved and that the condition is a mere transient hyperbilirubinæmia, a state entirely due to the increased breaking down of the extravasated hæmoglobin by the endothelial cells, and forming bilirubin. Pernicious anæmia does not give consistent negative results: it may be markedly positive in the terminal stages, due to the fatty degeneration present in the liver parenchyma

CHART 4.



Galactose test in an early case of pernicious anæmia.

CHART 5.



Galactose test in an advanced case of pernicious anæmia.

Chart 4 shows the negative curve obtained in a case of pernicious anæmia—an early case which contrasts with the more advanced case, in which presumably the fatty changes that have occurred in the liver render that organ incompetent as shown in Chart 5

T B Pernicious anæmia (extrahepatic type of jaundice) An early case with: red blood cells: 3 950 000; white cell count. 6000; colour-index: 1 1: Achlorhydria van den Bergh: indirect: Fouchet: negative: cholesterol. 110 mg. per cent.

Galactose tolerance test.—

		mg per cent
Blood sugar before administration	.	86
„ ½ hr after „	.	95
1 „		89
„ 1½ „ „	..	93
„ 2 „ „ „	.	91

Urine: free from sugar. No bile pigments or salts No urobilin.

Chart 5 shows the advanced condition with marked galactose intolerance

N T Pernicious anæmia (Extrahepatic type of jaundice) An advanced case with great dyspnœa, œdema and anæmia. Red blood cells 2,140,000, white cell count 5700, colour-index. 1 0 Achlorhydria van den Bergh. indirect, Fouchet - negative, cholesterol 92 mg per cent

Galactose tolerance test —

	mg per cent
Blood-sugar before administration	88
„ „ ½ hr after „	130
„ „ 1 „ „ „	172
„ „ 1½ „ „ „	153
„ „ 2 „ „ „	141

Urine 2 3 g of sugar No bile pigments or salts Urobilin positive

Toxic Jaundice

The most marked positive results are obtained in catarrhal jaundice Bauer states that phosphorus poisoning and acute yellow atrophy give very high values; no cases of this kind are included in this series In catarrhal jaundice the result is positive in the very earliest stages, and may persist for a much longer time than the clinical state indicates Indeed in some cases it may remain positive for a prolonged period, and, in this connexion, it is interesting to note that the German workers believe it is at this stage that many a cirrhosis begins to develop Chart 6 shows a typical catarrhal jaundice with pronounced intolerance

U R Catarrhal jaundice (hepatitis) Fever, malaise Jaundice Four days' duration van den Bergh delayed direct, Fouchet test positive (weakly), cholesterol 141 mg per cent

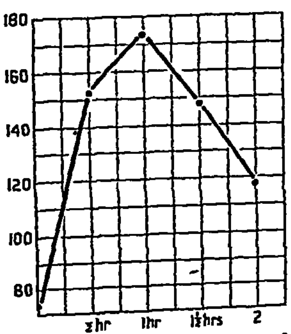
Galactose tolerance test —

	mg per cent
Blood-sugar before administration	72
„ „ ½ hr after „	151
„ „ 1 „ „ „	174
„ „ 1½ „ „ „	147
„ „ 2 „ „ „	119

Urine contained 2.7 g of galactose Bile salts negative, bile pigments faintly positive, urobilin positive

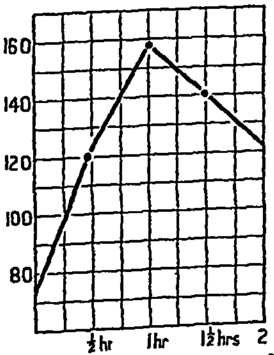
Although the icterus was hardly noticeable clinically and the Fouchet test was faintly positive, the

CHART 6.



Galactose test in a case of typical catarrhal jaundice with pronounced intolerance

CHART 7.



Galactose test in a case of catarrhal jaundice

galactose test shows a marked degree of cellular derangement in the liver itself

Chart 7 shows the curve obtained in a young person (25) who suffered from an attack of catarrhal jaundice The jaundice was deep and the van den Bergh reaction direct, pointing to an obstructive lesion—25 units Bile salts and pigments were present in the urine, but the positive galactose test showed some cellular derangement, demonstrating that although the turgescence and temporary blockage of the ampulla of Vater may play an important part in certain cases in producing the icterus, the liver cell is undoubtedly affected even in this type

N W Catarrhal jaundice, clinical jaundice, malaise, and fever Fouchet test positive, van den Bergh direct, 25 units

Galactose tolerance test —

	mg per cent
Blood-sugar before administration	74
„ „ ½ hr after „	121
„ „ 1 „ „ „	159
„ „ 1½ „ „ „	140
„ „ 2 „ „ „	121

Urine - Bile pigments. positive, Bile salts and urobilin - negative, Sugar. 2 5 g, Diastase 23 units

Syphilis

Syphilis also gives positive results The secondary stage may yield high results when there is no

CHART 8

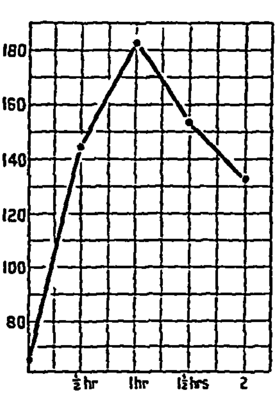
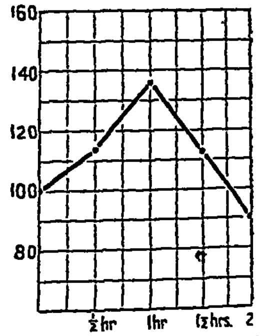


CHART 9



Galactose test in a case of syphilis before (Chart 8) and after (Chart 9) the administration of mercury and pot iod

jaundice present, and here it could be used as a guide before embarking upon strong antisyphilitic treatment In those cases in which the administration of arsenic has resulted in jaundice, the degree of inefficiency is shown by a positive galactose test One case is included here which showed a marked positive result during an attack of jaundice—a boy who had an enlarged liver and a positive W R The marked general improvement that was seen after the administration of mercury and potassium iodide for a month was shown equally well by the galactose test (Charts 8 and 9)

R B Jaundice, four attacks in three months At time of investigation van den Bergh indirect, 3 5 units, Fouchet test. positive, Cholesterol. 105 mg per cent

Galactose tolerance test (30 g given) —

	mg per cent.
Blood-sugar before administration	64
„ „ ½ hr after „	144
„ „ 1 „ „ „	182
„ „ 1½ „ „ „	152
„ „ 2 „ „ „	133

Urine contained 5 6 g of galactose, bile pigments, bile salts, and urobilin positive W R positive HG and KI given

One month later again investigated, when the icterus had vanished, with a no longer palpable liver

Galactose tolerance test —

	mg per cent
Blood-sugar before administration	100
„ „ ½ hr after „	114
„ „ 1 „ „ „	138
„ „ 1½ „ „ „	112
„ „ 2 „ „ „	90

Urine contained 1 4 g of galactose

The greatest difference now is 38 mg, whereas before treatment it was 118 mg

Cirrhosis

Cirrhosis of the liver yields variable results, and this is doubtless due to the hypertrophy that exists in this condition As enlarged cirrhotic liver is more likely to give a negative result than a small atrophic one Included in the series is a case of strong alcoholic history with much ascites but little emaciation or sign of toxicity (Chart 10) The galactose test was normal showing that the hypertrophy was overbalancing the abnormality, and the fibrosis was mainly portal The bromsulphalein test was also negative

M. W Cirrhosis of liver Much ascites No jaundice No emaciation No evidence clinically of any toxicity van den Bergh indirect 2 units, Fouchet test negative, cholesterol 83 mg per cent.
Galactose tolerance test —

	mg per cent
Blood-sugar before administration .	105
„ „ ½ hr after .	137
„ „ 1 „	140
„ „ 1½ „	141
„ „ 2 „ .	141

Amount of sugar lost 1 7 g Bile salts bile pigments and urobilin negative Bromsulphalein test · completely negative

The prognosis in this case is much better than in the following one Here although the ascites is a tremendous burden to the man there is far less evidence of a liver cell destruction than in the case of A. B (Chart 11), which shows such galactose intolerance

If an operation for cirrhosis were devised in which the ascites were relieved, this would be the type of case which would yield good results

Charts 11 and 12 show the opposite condition in which although the clinical findings were far less definite the ascites only being present in one and the liver not enlarged in either, yet the galactose test yielded very positive figures In these cases the symptoms were more prominent than the signs A fatal complication and an early termination would be more likely in such cases than that of Chart 10.

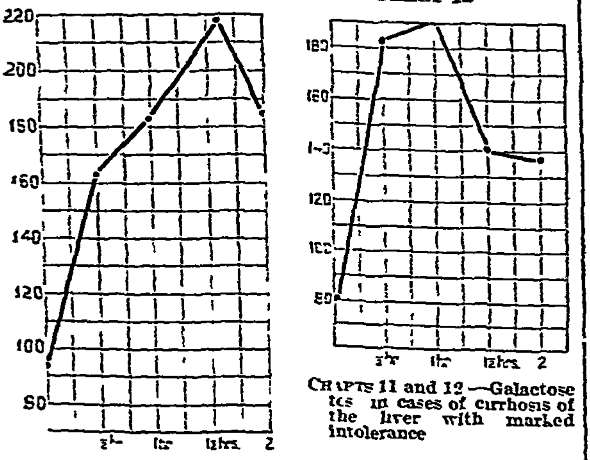
A B Cirrhosis of liver Fouchet test. negative; van den Bergh indirect (weakly), cholesterol. 131 mg per cent
Galactose tolerance test —

	mg per cent
Blood-sugar before administration .	94
„ „ ½ hr after „ .	161
„ „ 1 „	182
„ „ 1½ „	210
„ „ 2 „	186

Urine Sugar 3 5 g · bile salts: negative, bile pigments · positive, urobilin: negative

CHART 11.

CHART 12



CHARTS 11 and 12 —Galactose tests in cases of cirrhosis of the liver with marked intolerance

The clinical condition of the patient was bad The liver as shown by the galactose test was incompetent, and a termination would be expected sooner than in the case preceding, in which there must have been a fair degree of hypertrophy although the ascites was very marked

A L. Cirrhosis of liver Portal obstruction Jaundice. Caput medusæ Fouchet test strongly positive; van den Bergh. indirect, cholesterol. 95 mg per cent

Galactose tolerance test:—

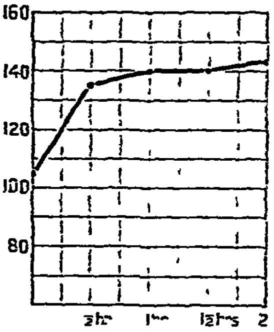
	mg per cent
Blood-sugar before administration .	80
„ „ ½ hr after „ .	181
„ „ 1 „ „	190
„ „ 1½ „ „ .	140
„ „ 2 „ .	137

Urine contained 3 g of galactose in three hours Bile pigments positive · bile salts negative urobilin. positive.

This is a case showing marked hepatic inefficiency.

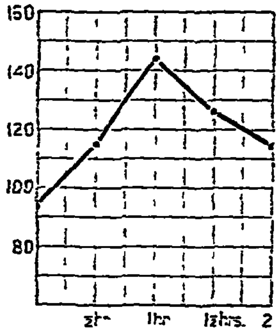
Chart 13 shows a positive galactose result in a case of carcinoma mammæ—a jaundice which developed during the patient's convalescence after an amputation of the breast The investigations were unfortunately delayed until the icterus had almost subsided, but the findings pointed more to a toxic condition (a hepatitis) than a true mechanical one. The patient became quite well in a few days

CHART 10



Galactose test in a case of cirrhosis of the liver with ascites

CHART 13



Galactose test in a case of carcinoma mammæ with post-operative jaundice

R. P. Carcinoma mammæ Jaundice post-operative. Is the jaundice due to secondary deposits in liver? or due to a benign coincident catarrhal jaundice? Fouchet test. negative · van den Bergh. two units
Galactose tolerance test.—

	mg per cent.
Blood-sugar before administration .	94
„ ½ hr. after „ .	116
1 „	145
1½ „ „ .	128
„ „ 2 „ „ „ .	115

Urine Bile salts and pigments · negative; urobilin: faintly positive.

Although the evidence is slight. the facts point to a toxic type rather than an obstructive. The after history proved that this condition was a transient hepatitis

Bauer has shown that in exophthalmic goitre a positive result can be obtained, but in this connexion it must be remembered that he only *noted the amount* lost in the urine and glycosuria is not by any means uncommon in this condition.

In this series all cases of jaundice were examined in the following order.—

(1) Duration. (2) Clinical diagnosis (3) Blood: Urea, Non-protein nitrogen, uric acid cholesterol, van den Bergh, Fouchet, galactose tolerance test. (4) Urine. bile salts, bile pigments, urobilin, diastase, sugar

Armed with the results of these tests one can arrive at a diagnosis which is within the range of great probability. It would be impossible to mistake an incipient jaundice due to neoplasm for a jaundice due to a benign catarrh Also in those cases which have a lithitic history with radiographic confirmation. if the tests are positive, they give due warning of a derangement of the hepatic cell itself. The blood-urea and non-protein nitrogen, &c, have been done to give an assurance that the nitrogen eliminating powers of the kidney are functioning

The *cholesterol estimation* has proved to be of great value It would be unwise to draw any such conclusions as that the patient has one or more gall-stones or a cholecystitis from the cholesterol estimation alone, but as surely as the content is high —i e , not less than 180 mg —it points strongly to an obstructive jaundice In only one other condition are such high cholesterol figures obtained, and that is the nephrosis of Epstein Cholesterol, like the bile salts, passes in a circle through the blood—>liver—>ducts—>intestine—>blood, with a variable loss in the fæces In obstructive jaundice this route is impeded and there is a consequent damming back in the circulation, producing a high figure The hypercholesterolæmia that is supposed to be present in cases of cholecystitis has not been confirmed—in fact, the gall-bladder can be full of pathological conditions, the patient can be persistently fed with cholesterol containing substances, as long as the ducts remain patent, little increase can be made out in the cholesterol content of the systemic circulation.

Some cholesterol estimations obtained in various diseases are here appended —

		mg per cent
H R	Gall stones and cystitis	111
E W	Jaundice—carcinoma pancreas	250
A L	Cirrhosis of liver	95
F G	Enlarged liver without icterus (cirrhosis)	78
R B	Syphilitic liver	105
M U	Obstructive jaundice	305
H H	Cirrhosis	109
M C	Malignant jaundice (obstructive)	212
M M	Toxic jaundice	140
M N	Cirrhosis	83
B M	Nephrosis (28/10/25)	517
	(6/11/25)	444
	(24/11/25)	240
C T	Diabetes	127
F T	Diabetes—diabetic coma	210
J S	Obstructive jaundice	340
P A	Pernicious anæmia	97
A	Obstructive jaundice	333
	Addison's disease	78
	Carc breast, sec liver, obstructive jaundice	308
A B	Cirrhosis	131
D T	Acholuric jaundice	145

It can be seen, therefore, that in cases of jaundice, if the cholesterol is above 180 mg per cent , it points to an obstructive type

Van den Bergh Reaction —The utility of this reaction has not proved to be proportional to the initial reputation it gained Although extremely disappointing in the laboratory, and being definite only when there are at the same time definite diagnostic facts equally well observed at the bedside, it has nevertheless brought into prominence Aschoff's work on the reticulo-endothelial system It has also brought to light the extrahepatic type of jaundice, and has made it possible to estimate the bilirubin content of the serum—an estimation undoubtedly of great value Success has not resulted when an attempt has been made to differentiate the various types of jaundice by the intensity of colour and time of appearance The only satisfaction that can be obtained is whether the van den Bergh is direct or not—to be able to diagnose and divide into any further groups is highly hypothetical The use of caffeine sodium salicylate to enhance the colour of the diazo-reaction has also yielded little profit Further studies are now being carried out on the constitution of the bile pigments in various types of sera, and an attempt is being made to ascertain the difference between the bilirubin that has passed through the hepatic cell and that which has not passed, a difference which becomes almost doubtful, except for a possible difference in quantity or a difference intimately related to the duration of the jaundice It is known already how easily bilirubin changes to biliverdin—how the marked changes in colour occur when the reaction is changed—how even the reaction (alkali or acid) of stomach contents that are tinged with bile can be judged by the green or blue colour of the contents It is possible that similar colour changes—but quite intermediate—occur in bilirubin in sera in various conditions and during various stages of the jaundice These or other facts may explain the uncertain colour changes observed in alcoholic extractions that have been advocated as differentiating facts, but which have so frequently proved valueless Except therefore for the estimation of the degree of bilirubinæmia, little proof has been forthcoming that the van den Bergh reaction adds any more information in the diagnosis of jaundiced cases It is indeed manifest to an observer who has attempted any work on the condition of jaundice how delicate the eye sense is, and how little is gained by any further laboratory investigations of the pigment by the van den Bergh reaction

Fouchet Test —This test is always regarded by all who have experience of it to be highly valuable It was introduced to demonstrate the presence or absence of a pathological degree of bilirubinæmia It is supposed to show an amount of 1 to 60,000, but it promises to be even more delicate

Bile salts in the urine indicate the jaundice to be of obstructive origin Bile salts are sometimes found to be present when no icterus is present—dissociated jaundice of the French—this is little understood

Urobilin —The presence or absence of urobilin in the urine has proved to be of great value, if present it generally supports the diagnosis of a jaundice to be due to some toxic state, in mechanical cases it is always negative

A *diastase* content in the urine of over 50 units assists in attributing the cause of the icterus to a primary pancreatic lesion

Example of icterus due to obstruction .—

Blood van den Bergh reaction direct immediate, cholesterol content 220 mg per cent , galactose tolerance test 100, 110, 121, 109, 94 Urine urine sugar less than 1 g, bile salts and pigments positive, urobilin negative

Example of an icterus toxic in character (catarrhal jaundice) —Blood van den Bergh reaction indirect, cholesterol content 126 mg per cent , galactose tolerance test 94, 120, 160, 145, 126 Urine sugar content in three hours 5 5 g , bile salts negative, bile pigments and urobilin positive

Example of an extrahepatic jaundice (pernicious anæmia) —Blood van den Bergh reaction · indirect , cholesterol content 97 mg per cent galactose tolerance test 94, 112, 108, 99, 81 Urine No galactosuria , bile salts, bile pigments, and urobilin negative

The three cases detailed are examples of the three great divisions of jaundice, and the galactose test yields positive results in the second group only

The two factors to note in the galactose tolerance test are the maximum difference obtained in the blood-sugar level and the amount in grammes of reducing substance present in the urine A difference of over 30 mg in blood-sugar indicates some positive degree, frequently as much as 160 mg difference is obtained The second factor is the amount in grammes lost out of the 40 g ingested, and which must always be estimated Any amount of over 2 g proves a decided hepatic deficiency As the threshold for galactose is less than that for glucose, sugar appears in the urine with a blood-sugar value that is often not higher than 130 mg , so that one sees quite frequently a small degree of galactosuria even in health after the administration of 40 g In small children it is customary to modify the dose, but no rigid standard has been adopted

Summarising the pathological states, it is seen that in *obstructive jaundice* the galactose test is negative, but the van den Bergh reaction is direct, the cholesterol content is high, and bile salts are present in the urine, while in *toxic and infective jaundice* (including the hepatitis called catarrhal jaundice) and in any other lesion of the hepatic cell the following are the salient features · a difference of blood-sugar far exceeding 30 mg per cent , a loss of over 2 g in the urine, a normal cholesterol content, a van den Bergh reaction which is indefinite with generally bile pigments only in the urine, and lastly, an urobilin reaction which is strong in degree

In *extrahepatic jaundice* the main features are on the negative side—a negative galactose test, absence of urobilin in the urine, and the normal cholesterol content being the main aids in diagnosis

References —1 Bauer, Richard Wien Med Wchnschr, 1906, lvi, 2537 2 Brasch, Walther Ztschr für Biol , 1908, 50, 113 3 Kahler, H , and Machold, K Wien Klin Wchnschr , 1922, No 18, p 414 4 Bauer, Richard Ikterus und Leberfunktion, Wiener Arch für Innere Medizin , 1923, vi , 9 5 Rowe, A W Arch Int Med , 1924, xxxiv 388

A STUDY OF THE LÆVULOSE TOLERANCE TEST FOR HEPATIC EFFICIENCY.[*]

BY GORDON KING, F R C S. ENG, L R C P. LOND,
LATE CHEMICAL PATHOLOGY ASSISTANT, HALE CLINICAL LABORATORY LONDON HOSPITAL

THE use of lævulose as a means of testing hepatic efficiency was first suggested by Strauss [1] in 1901. The original test depended upon the detection of lævulosuria after the oral administration of 100 g. of the sugar. Strauss concluded that the presence of lævulose in the urine indicated an impairment of the liver function. In 1912 Schrokauer [2] demonstrated that the administration of lævulose to a normal fasting subject caused little or no rise in the blood-sugar curve; cases of obvious disease of the liver, on the other hand, showed a definite rise. MacLean and de Wesselow [3] reaffirmed this discovery in their important work on sugar tolerance in 1920, when they stated that lævulose appeared to be the only sugar which gave no definite rise in the blood-sugar content after ingestion. Spence and Brett [4] gave an admirable description of the lævulose tolerance test in 1921 and concluded that it afforded a valuable means of estimating the actual degree of liver dysfunction. Covell,[5] Tallerman,[6] and other workers have confirmed these results. Still more recently Finkelstein and Dannenberg,[7] working in St Louis, have given their opinion as to the value of the test. Greene, Snell, and Walters [8] on the other hand, have concluded, in a recent survey of tests for hepatic function, that the clinical importance of the lævulose tolerance test is still undecided.

The present study is based upon an investigation of 53 cases and was undertaken with the view of determining the clinical value of the lævulose tolerance test in various types of liver disease.

Theoretical Basis of the Test.

It has been shown that the animal body has practically no tolerance for lævulose when it is perfused continuously into a superficial vein.[9] Almost the whole of the sugar thus introduced into the circulation is immediately excreted by the kidneys. When, however, lævulose is given by the mouth it is found that a considerable dose can be tolerated without giving rise either to a recognisable increase in the blood-sugar or to any marked degree of lævulosuria. In the former instance it is clear that owing to its direct access into the systemic circulation comparatively little of the lævulose can be subjected to the action of the liver. In the latter instance, however, all the lævulose which is absorbed from the intestine must first pass through the portal system to the liver before it can gain entrance to the systemic circulation. The natural interpretation of these facts is that the liver alone has the power of building up and storing lævulose. In fact, as Sir Humphry Rolleston has noted [10] lævulose is the only carbohydrate of which the metabolism cannot be carried on elsewhere in the body than in the liver. It may be stated in brief therefore that normally there is little or no rise in the blood-sugar curve following the ingestion of a given amount of lævulose.

The sequence of events is far different, however, in the case of gross liver disease, whether due to degeneration, atrophy, inflammation, or new growth. In these circumstances the liver cells are either partly destroyed or rendered individually less capable of function. They are therefore unable to deal efficiently with the lævulose after it is absorbed from the intestine. Consequently the sugar evades polymerisation and escapes from the portal into the systemic circulation, there giving rise to a marked increase in the blood-sugar content, the extent and duration of which may be regarded as indicative of the degree of liver damage.

It is clear that three factors, apart from the activity of the liver, will tend to influence the height attained by this blood-sugar curve:—

In the first place the rate of absorption from the gut must be considered. In cases where chronic inflammation or atrophy of the mucous surfaces is present the rate of absorption will be correspondingly slow, and the concentration of lævulose in the blood at any given time will be relatively lower than in cases with healthy mucous membrane.

Secondly, the pancreas has a very intimate connexion with certain stages in the metabolism of sugars in the animal body. Clearly, then, an anomalous result might be obtained by exhibiting lævulose in a case of pancreatic deficiency. This possibility must be excluded, if need be, by separately determining the glucose tolerance. A reaction to lævulose can only be taken as abnormal if there is no evidence pointing to pancreatic disorder.

Finally, the rate of elimination of the sugar from the blood must have a definite reaction upon the height of the lævulose curve. Elimination is mainly effected by the kidneys, and in some cases is much more rapid than in others. In passing, it may be noted that the threshold for lævulose is considerably lower than that for glucose. Lævulose can be detected in the urine after quite small degrees of rise above the fasting level of blood-sugar.

It is important that these three factors should be borne in mind in interpreting the results of the lævulose tolerance test.

Technique of the Test.

For routine work, the custom has been to order the patient to starve from midnight. Eight or nine hours later a sample of blood is taken for the purpose of estimating the fasting sugar level. To an average adult a dose of 45 g. of lævulose, dissolved in 100 c cm. of water, is then administered by mouth, and samples of blood are collected thereafter at accurate half-hourly intervals for two hours. Specimens of urine are also taken before the test and at each hour during its progress. Finally, the percentage of sugar is estimated in each of the samples of blood and a curve is plotted indicating the result in graphic form. The specimens of urine are also examined both qualitatively and quantitatively for lævulose, but in practice this procedure has been found to be of little additional value when once the blood-sugar curve is known.

The blood-sugar estimations have all been performed on 0.2 c cm. of blood taken from one of the fingers into a finely graduated pipette. The method of estimation employed has been the colorimetric one described in 1919 by Folin and Wu,[11] the necessary volumetric modifications being made to allow for the smaller amount of blood utilised. For practical purposes this method has been found quite as accurate as that involving venepuncture—and certainly much less trying to the patient. It is to be noted that the sugar estimations include the sugar normal to the blood, together with the superadded lævulose content. It is impossible to estimate lævulose separately in the blood—neither would any useful purpose be served in so doing, for since the reducing power of lævulose so very nearly corresponds with that of glucose the estimation of the combined sugar value of the blood is for all ordinary purposes sufficiently accurate.

It has not been found necessary to make any fine adjustment of the dose of lævulose to the body weight. In the majority of adult cases a routine dose of 45 g. as suggested by Tallerman,[6] was found satisfactory.

Results in Normal Cases.

Before attempting to apply the test to known instances of liver disease it was decided to make observations on a series of normal cases. Accordingly, ten such cases were investigated and the results

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[*] This investigation was carried out under the auspices of the Eliza Ann Alston Research benefaction.

estimation alone, but as surely as the content is high—i e, not less than 180 mg—it points strongly to an obstructive jaundice In only one other condition are such high cholesterol figures obtained, and that is the nephrosis of Epstein Cholesterol, like the bile salts, passes in a circle through the blood—>liver—>ducts—>intestine—>blood, with a variable loss in the fæces In obstructive jaundice this route is impeded, and there is a consequent damming back in the circulation, producing a high figure The hypercholesterolæmia that is supposed to be present in cases of cholecystitis has not been confirmed—in fact, the gall-bladder can be full of pathological conditions, the patient can be persistently fed with cholesterol containing substances, as long as the ducts remain patent, little increase can be made out in the cholesterol content of the systemic circulation

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The present study is based upon an investigation of 53 cases and was undertaken with the view of determining the clinical value of the lævulose tolerance test in various types of liver disease

Theoretical Basis of the Test

It has been shown that the animal body has practically no tolerance for lævulose when it is perfused continuously into a superficial vein[9] Almost the whole of the sugar thus introduced into the circulation is immediately excreted by the kidneys When, however, lævulose is given by the mouth it is found that a considerable dose can be tolerated without giving rise either to a recognisable increase in the blood-sugar or to any marked degree of lævulosuria In the former instance it is clear that, owing to its direct access into the systemic circulation, comparatively little of the lævulose can be subjected to the action of the liver In the latter instance, however, all the lævulose which is absorbed from the intestine must first pass through the portal system to the liver before it can gain entrance to the systemic circulation The natural interpretation of these facts is that the liver alone has the power of building up and storing lævulose In fact, as Sir Humphry Rolleston has noted[10] lævulose is the only carbohydrate of which the metabolism cannot be carried on elsewhere in the body than in the liver It may be stated in brief, therefore, that normally there is little or no rise in the blood-sugar curve following the ingestion of a given amount of lævulose

The sequence of events is far different, however, in the case of gross liver disease, whether due to degeneration, atrophy, inflammation, or new growth In these circumstances the liver cells are either partly destroyed or rendered individually less capable of function They are therefore unable to deal efficiently with the lævulose after it is absorbed from the intestine Consequently, the sugar evades polymerisation and escapes from the portal into the systemic circulation, there giving rise to a marked increase in the blood-sugar content, the extent and duration of which may be regarded as indicative of the degree of liver damage

It is clear that three factors, apart from the activity of the liver, will tend to influence the height attained by this blood-sugar curve —

In the first place the rate of absorption from the gut must be considered In cases where chronic inflammation or atrophy of the mucous surfaces is present, the rate of absorption will be correspondingly slow, and the concentration of lævulose in the blood at any given time will be relatively lower than in cases with healthy mucous membrane

Secondly, the pancreas has a very intimate connexion with certain stages in the metabolism of sugars in the animal body. Clearly, then, an anomalous result might be obtained by exhibiting lævulose in a case of pancreatic deficiency This possibility must be excluded, if need be, by separately determining the glucose tolerance A reaction to lævulose can only be taken as abnormal if there is no evidence pointing to pancreatic disorder.

Finally, the rate of elimination of the sugar from the blood must have a definite reaction upon the height of the lævulose curve Elimination is mainly effected by the kidneys, and in some cases is much more rapid than in others In passing, it may be noted that the threshold for lævulose is considerably lower than that for glucose Lævulose can be detected in the urine after quite small degrees of rise above the fasting level of blood-sugar

It is important that these three factors should be borne in mind in interpreting the results of the lævulose tolerance test.

Technique of the Test

For routine work, the custom has been to order the patient to starve from midnight Eight or nine hours later a sample of blood is taken for the purpose of estimating the fasting sugar level To an average adult a dose of 45 g of lævulose, dissolved in 100 c cm of water, is then administered by mouth, and samples of blood are collected thereafter at accurate half-hourly intervals for two hours Specimens of urine are also taken before the test and at each hour during its progress Finally, the percentage of sugar is estimated in each of the samples of blood and a curve is plotted indicating the result in graphic form The specimens of urine are also examined both qualitatively and quantitatively for lævulose, but in practice this procedure has been found to be of little additional value when once the blood-sugar curve is known

The blood-sugar estimations have all been performed on 0 2 c cm of blood taken from one of the fingers into a finely graduated pipette The method of estimation employed has been the colorimetric one described in 1919 by Folin and Wu,[11] the necessary volumetric modifications being made to allow for the smaller amount of blood utilised For practical purposes this method has been found quite as accurate as that involving venepuncture—and certainly much less trying to the patient It is to be noted that the sugar estimations include the sugar normal to the blood, together with the superadded lævulose content It is impossible to estimate lævulose separately in the blood—neither would any useful purpose be served in so doing, for since the reducing power of lævulose so very nearly corresponds with that of glucose, the estimation of the combined sugar value of the blood is for all ordinary purposes sufficiently accurate

It has not been found necessary to make any fine adjustment of the dose of lævulose to the body weight In the majority of adult cases a *routine* dose of 45 g, as suggested by Tallerman,[6] was found satisfactory

Results in Normal Cases

Before attempting to apply the test to known instances of liver disease it was decided to make observations on a series of normal cases Accordingly, ten such cases were investigated, and the results are recorded in Table I All the cases were apparently normal, healthy individuals and they volunteered readily for the test

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* This investigation was carried out under the auspices of the Eliza Ann Alston Research benefaction

TABLE I —*Series of Normal Cases*

No	Sex	Age	Blood sugar %					Height of rise
			Before	In ½ hr	In 1 hr	In 1½ hr	In 2 hr	mg
1	M	35	0·091	0·100	0·100	0·099	0·098	9
2	M	23	0·080	0·087	0·086	0·083	0·080	7
3	M	25	0·098	0·101	0·098	0·085	0·083	3
4	M	45	0·094	0·096	0·094	0·094	0·094	2
5	M	45	0·101	0·107	0·110	0·107	0·104	9
6	F	20	0·114	0·121	0·117	0·115	0·114	7
7	F	17	0·107	0·125	0·121	0·114	0·107	18
8	M	31	0·101	0·104	0·107	0·101	0·101	6
9	M	58	0·098	0·104	0·110	0·105	0·098	12
10	M	33	0·089	0·091	0·094	0·091	0·085	5
Average =			0·096	0·104	0·104	0·099	0·096	8

It will be noticed that in each case, after the administration of lævulose, there is a slight rise in the blood-sugar curve To facilitate reference, the height above the fasting level of the peak of the curve is expressed in the final column of the table as milligrammes of sugar per 100 c cm of blood Within an hour and a half or two hours there is almost invariably a return to the fasting level Cases 1 and 5 are the only exceptions to this, and in these the variation is so small as to be within the limits of experimental error In Case 3 considerable muscular work was undertaken during the second hour of the test, thus explaining a drop of the blood-sugar below the original fasting level In five of the cases no lævulose whatever could be detected in the urine during the test In the remaining five (Nos 1, 2 5 7, and 9) there was very slight reduction of Fehling's solution and a faintly positive Seliwanoff reaction This demonstrates the remarkably low renal threshold for lævulose

The results of all these cases have been coordinated together to form an average normal curve, a reproduction of which is given in Chart 1 This curve represents a rise of 8 mg above the fasting level It will be taken as expressing the reaction to lævulose of a normal fasting individual and will be referred to later in considering certain abnormal instances The fasting level of the blood-sugar varies considerably in different individuals—and even in the same individual at different times In estimating the lævulose tolerance the important factor to determine is, not so much the highest actual percentage of sugar present in the blood at any one time during the test, as the height of rise of the blood-sugar curve above the fasting level

Results in Abnormal Cases

These results are expressed in tabular form in Table II According to the height and duration of the curves obtained, the degrees of impairment of the liver function have been assigned as slight, moderate, marked, severe, and extreme In almost every case a parallel determination was made of the bilirubin content of the serum according to the method suggested by van den Bergh [12] and described by McNee [13] [14] This was of special interest in showing a definite degree of latent jaundice in many of the cases in which there was no jaundice clinically

The cases may be considered in various groups

1 *Portal Cirrhosis*—Twelve instances of this disease were investigated (Nos 11–22) In every case the lævulose curve reached an abnormal height, the maximum being usually obtained one and a half hours after the commencement of the test In no case was there a return to the fasting level by the end of the second hour A definite degree of jaundice (often not evident clinically) was also demonstrated in most of the cases by the bilirubin content of the serum Case 18 was a very early cirrhosis of the liver discovered at operation for another condition The curve is not very high, but it is interesting in that it continues definitely to rise at the end of the second hour There was no clinical evidence of cirrhosis in this patient Case 20 is of interest as showing the highest curve obtained in any patient of the series The patient was suffering from cirrhosis and perihepatitis ascites constantly recurred and he had been tapped 69 times when the test was performed The result is shown graphically in Chart 2

2 *Syphilitic Cirrhosis of Liver*—There was abundant evidence of this condition in Case 23 It will be seen that the test indicated a marked impairment of the liver function There were 3 6 units of bilirubin in the serum, as compared with 0 4 units in the normal subject

3 *Splenomegalic Cirrhosis*—A high degree of lævulose intolerance was exhibited in Case 24, death occurred a few months later Cases 25, 26, and 27 also showed varying degrees of liver inefficiency

4 *Malignant Disease*—Several instances of carcinoma of the biliary passages, pancreas, and stomach were investigated (Cases 28–39) In Case 28 the diagnosis of catarrhal jaundice was originally made There was a painless onset of jaundice and a smooth enlargement of the liver The lævulose intolerance was marked and the bilirubin content of the blood was high (27 units) A fortnight later the lævulose tolerance test was repeated and a slightly more abnormal result obtained (see Table II) Meanwhile, the bilirubin content of the serum had progressed to 54 units A provisional diagnosis of carcinoma of the head of the pancreas was then made and a few days later this was confirmed by the appearance of nodules of secondary growth on the surface of the liver Post mortem the liver was riddled with secondaries Other cases also showed diminished lævulose tolerance and in those instances which came to post mortem the liver was found to be invaded by masses of secondary carcinoma In Case 35 the gall bladder was found at operation to be full of purulent material This element of infection no doubt partly accounted for the extreme degree of liver inefficiency denoted by the test In cases of carcinoma of the stomach it seems probable that a useful application of the test would be to determine the presence of secondary deposits in the liver (Case 37) An unnecessary laparotomy might be avoided if the lævulose tolerance test denoted a marked degree of liver impairment

5 *Catarrhal Jaundice*—Case 40 is one of great interest The patient, a well-developed man of 33, was recovering from an attack of influenza for which he had been treated at home A week before admission to the hospital he complained of malaise and slight shivering attacks Two days before admission he lost all taste for food, vomited once, and began to experience a heavy feeling in the upper abdomen On admission he was slightly jaundiced and the urine contained bile The bowels had not been open for two days There were no enlarged glands and the liver and spleen were not palpable The jaundice increased for a week and then began to improve A week later the jaundice recurred, but from that time there was gradual improvement A month later the patient was discharged with only a faint remaining trace of jaundice The lævulose tolerance was determined just after the acute stage of the attack and again after recovery The results are expressed in Chart 3 There seems to be definite impairment of the function of the liver at the height of the disease which passes off as recovery takes place If catarrhal jaundice is pathologically an obstructive inflammation of the common bile duct with consequent retention of bile, one would not necessarily expect any lessening of the activity of the liver cells in metabolising lævulose—but such is the case It seems at least probable therefore that catarrhal jaundice is due

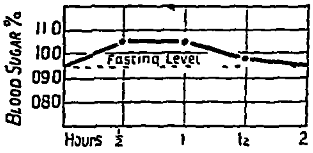

CHART 1 —Average normal curve

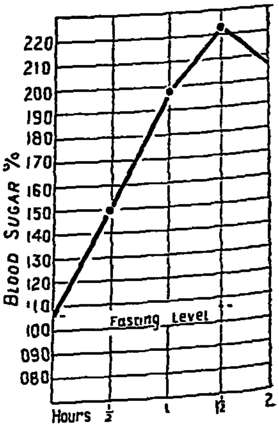

CHART 2 (Case 20) —Severe impairment

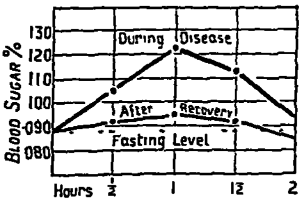

CHART 3 —Catarrhal jaundice

to a mild infection of the liver itself and is not dependent entirely upon an obstructive cholangitis

6 *Acute Cholecystitis* —An acute infective process in the gall-bladder seems to have a secondary influence upon the functioning power of the hepatic parenchyma In Case 41 a considerable impairment of the liver efficiency is indicated

7 *Chronic Cholecystitis* —This condition, on the other hand, has little or no adverse influence on the liver Case 42 shows a curve which approaches the normal In this case it was ascertained that a small, thickened gall-bladder, filled with stones, was present

8 *Acute Cholangitis* —These cases show diminished liver efficiency, probably due to back-spread of the infection Case 44 is interesting from this point of view The patient was a female, aged 34, for 15 years there had been symptoms of chronic cholecystitis, together with a history of two attacks of gall-stone colic A large chronically inflamed gall-bladder full of stones was removed, and the patient was discharged to a convalescent home A few weeks later she returned with pyrexia, rigors, and night sweats The rigors continued in the ward, jaundice developed there was bile in the urine, and the fæces were pale and bulky Dullness appeared at the base of the right lung, and the liver dullness showed signs of enlargement Either subphrenic abscess or cholangitis was suspected. Blood cultures were sterile, there was no leucocytosis, and no fluid or pus was obtained on needling in the region of the right base There was marked diminution of the lævulose tolerance (see Chart 4A) Cholangitis was accordingly diagnosed and the patient was treated with urotropine There was immediate improvement the temperature settled, and the jaundice began to clear Later the patient was transferred home with no pyrexia but slight jaundice When last seen the jaundice was slowly increasing (probably the result of some stenosis of the common bile-duct) but the temperature remained normal and the general condition was very satisfactory At this date the lævulose tolerance was normal (see Chart 4B) In this instance the lævulose tolerance test was of considerable diagnostic importance.

9 *Arsenical Jaundice* —It is known that arsenical poisoning affects the liver more gravely, perhaps, than any other organ Consequently, it was not surprising to find that there was an extreme degree of liver damage in two cases in which jaundice developed after the recent injection of an arsenical compound Both cases were being treated for syphilis Both recovered (Nos 46 and 47)

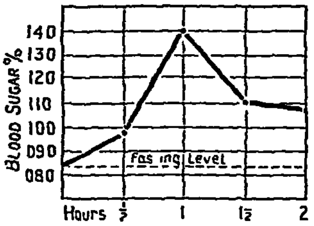

CHART 4 A —Acute cholangitis (during attack)

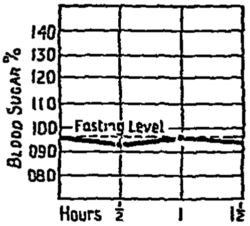

CHART 4 B —Acute cholangitis (recovery)

10 *Cardiac Failure* —Observations were made on three such cases In all of them (Nos 48–50) there was definite enlargement of the liver Only very slightly abnormal results were obtained in two cases In the other no abnormality could be detected Each case showed a definite degree of hyperbilirubinæmia

11 *Anomalous Cases* —There was only one anomalous case in the series In this there was extreme distension of the abdomen and it was impossible to tell whether this was due to free fluid or to the presence of a cyst. Cirrhosis with ascites, ovarian cyst, and hydatid cyst were all suggested as possible diagnoses The lævulose tolerance was diminished and this seemed to point to the diagnosis of cirrhosis At laparotomy a huge multilocular ovarian cyst was discovered The liver was extremely compressed

TABLE II —*Series of Abnormal Cases*

No	Sex	Age	Diagnosis, &c	Units of bilirubin in serum	Blood sugar %						Impairment of liver function
					Before lævulose	½ hr later	1 hr later	1½ hr later	2 hr later	Rise in mg %	
11	M	59	Portal cirrhosis	—	0 083	0 107	0 114	0 144	0 121	61	Marked.
12	F	63	Perihepatitis ascites	—	0 098	0 123	0 125	0 121	0 117	27	Slight
13	F	39	Portal cirrhosis	—	0 094	0 117	0 129	0 134	0 125	40	Moderate
14	M	37	" "	2 7	0 094	0 104	0 129	0 144	0 134	50	Marked
15	M	54	Portal cirrhosis, perihepatitis, ascites	3 7	0 096	0 134	0 139	0 125	0 104	43	Moderate
16	M	41	Portal cirrhosis	3 6	0 089	0 125	0 147	0 179	0 156	90	Extreme
17	F	43	Portal cirrhosis ascites	7 7	0 085	0 117	0 144	0 163	0 150	78	Severe
18	M	56	Early cirrhosis, discovered at operation	1 4	0 096	0 107	0 110	0 117	0 121	25	Slight
19	M	45	Portal cirrhosis, severe epistaxis	5 4	0 094	0 110	0 129	0 156	0 125	62	Severe
20	M	50	Cirrhosis perihepatitis tapped 69 times	6 3	0 107	0 150	0 198	0 221	0 208	114	Very extreme.
21	M	63	Portal cirrhosis, ascites	6 4	0 083	0 142	0 129	0 114	0 104	59	Marked
22	M	42	Portal cirrhosis	—	0 098	0 139	0 150	0 144	0 134	52	"
23	M	48	Syphilitic cirrhosis, ascites, W R. +	3 6	0 098	0 144	0 163	0 163	0 139	65	"
24	F	18	Splenomegalic cirrhosis	—	0 072	0 107	0 125	0 163	0 125	91	Extreme
25	F	50	" "	—	0 112	0 129	0 145	0 129	0 125	33	Moderate
26	F	46	" "	2 6	0 104	0 139	0 156	0 150	0 134	52	Marked
27	M	18	Familial splenomegaly, liver enlarged	—	0 091	0 117	0 112	0 101	0 098	26	Slight
28	F	37	Carc of head of pancreas { Early	27 0	0 080	0 117	0 134	0 129	0 125	54	Marked
			Later	54 0	0 083	0 129	0 139	0 125	0 117	56	Increasing
29	M	58	" "	32 4	0 101	0 121	0 150	0 150	0 134	49	Marked
30	M	56	" "	16 2	0 107	0 150	0 144	0 121	0 114	43	"
31	M	50	" "	23 2	0 083	0 150	0 139	0 125	0 107	67	"
32	M	48	" " (?)	14 7	0·080	0 104	0 129	0 160	0 156	80	Severe
33	M	47	Carc of ampulla of Vater	59·0	0 104	0 129	0 150	0 163	0 150	59	"
34	M	51	"	31 0	0·091	0 112	0 134	0 150	0 112	59	Marked
35	M	64	Carc of common bile duct, infected	19 1	0 107	0 129	0 170	0 188	0 188	81	Extreme
36	M	62	Carc of common hepatic duct	29 7	0·078	0 094	0 139	0 134	0·098	61	Marked.
37	M	61	Carc of stomach, secondaries in liver	11 6	0·094	0 117	0 144	0 134	0 111	50	"
38	M	60	Sec carc of liver, ? primary	—	0·085	0 105	0 125	0 118	0 105	40	Moderate
39	F	49	Sec melanotic carc of liver lungs &c	2·0	0 107	0 125	0 150	0 144	0 107	43	"
40	M	33	Catarrhal jaundice { During attack	19 7	0 089	0 104	0 121	0 112	0·091	32	"
			After recovery	11 5	0 089	0·091	0 094	0·091	0·085	5	Return to normal
41	M.	53	Acute cholecystitis	3 0	0 087	0 125	0 125	0 117	0 114	38	Moderate
42	F	57	Chronic "	1 4	0 106	0 120	0 120	0 115	0 106	14	Little or none
43	M	37	Acute cholangitis { During attack	7 2	0 082	0 117	0 112	0 101	0 094	35	Moderate
			After recovery	1 1	0 098	0 104	0 101	0 098	0 098	6	Returntonormal
44	F	34	" " { During attack	2 5	0 083	0 098	0 139	0 110	0 107	56	Marked.
			After recovery	7 2	0 098	0 096	0·098	0 097	—	0	Returntonormal.
45	F	47	Chronic pancreatitis, cholecystenterostomy	9·2	0 089	0 098	0 104	0 101	0 094	15	Little or none
46	M	27	Stabilarsan jaundice, syphilis	14 3	0 096	0 144	0 170	0 150	0 129	74	Extreme
47	M	50	Neosalvarsan "	32 4	0 104	0 150	0 188	0 170	0 150	84	"
48	M	56	Chronic bronchitis, cardiac failure	2·0	0 125	0 144	0 150	0 144	0 139	25	Slight
49	M	47	Cardiac failure liver enlarged	3·0	0 098	0 125	0 121	0 110	0 098	27	"
50	M	51	" ascites	3 0	0 100	0 108	0 104	0 100	0 100	8	Little or none
51	F	57	Ovarian cyst removal	2·0	0 104	0 156	0 163	0 134	0 117	59	Apparently severe
52	M	58	Chronic gastritis neurasthenia	0 8	0·098	0 104	0 110	0 105	0 098	12	None
53	M	66	Hæmatemesis ? portal cirrhosis	1 5	0·091	0 125	0 134	0 139	0 144	53	Severe

between the cyst and the diaphragm, but showed no other signs of abnormality (Case 51)

Clinical Value of the Test

A test for hepatic efficiency may be useful as an aid to diagnosis, as a means of controlling treatment and as a factor in prognosis

1 *As an Aid to Diagnosis* —In many cases the diagnosis is often clinically obvious before an opportunity for performing the lævulose tolerance test is offered In these instances the test is only useful inasmuch as it affords a definite index of the impairment of liver function In certain cases, however, the test may be of great value in settling a doubtful diagnosis The case of acute cholangitis quoted above is an example of this Two other cases will now be quoted in which the test was an important diagnostic factor.

Case 52 —Male, aged 58, dock labourer The patient was in hospital nine years previously with a history of abdominal pain but no vomiting At that time the liver was slightly enlarged The test-meal showed no free HCl and diminished total acidity A diagnosis was made of chronic gastritis, (?) hepatic cirrhosis Eighteen months before readmission there was a return of dyspeptic symptoms accompanied by occasional vomiting Later there was pain in the upper and lower abdomen accompanied by vomiting There was no hæmatemesis or melæna, the appetite was fair, but there was some loss of weight There was no previous history of any serious illness The patient was a moderate smoker and drinker On examination he was of healthy appearance, but somewhat neurotic in temperament The heart and lungs were normal The liver was not palpable but was slightly enlarged to percussion, no other abnormality was noticed Rectal examination showed nothing abnormal The test-meal showed no free HCl and diminished total acidity Wassermann reaction negative Radiological examination showed no evidence of any organic lesion of the stomach, pylorus, or duodenum The lævulose tolerance test was normal The possibility of hepatic cirrhosis was thus ruled out (See Chart 5) The final diagnosis was chronic gastritis

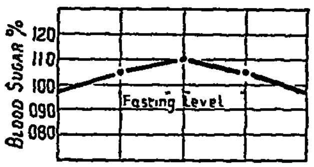

Chart 5 —Chronic gastritis

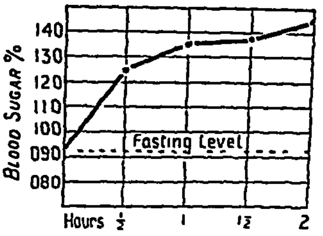

Chart 6 —Hepatic cirrhosis

Case 53 —Male, aged 58, costermonger The patient was quite well until a month before admission He then complained of pain in the upper abdomen, it was present every day, was not affected by food, and showed no radiation For a week before admission there was retching and some vomiting The day before admission he vomited blood twice There was no previous history of hæmatemesis or melæna The appetite was good, but there was slight loss of weight There was no previous history of any serious illness The patient was a non-smoker, but drank beer moderately

On examination he was a well built man but rather pale The heart and lungs were normal The abdomen was well covered but not distended, there was slight epigastric tenderness, the liver was enlarged three fingers-breadth below the costal margin The spleen was not palpable, there was no ascites Rectal examination showed nothing abnormal Blood examination showed a moderate degree of secondary anæmia The Wassermann reaction was negative The test-meal showed no free HCl and diminished total acidity Radiological examination showed no evidence of any organic lesion The lævulose tolerance was much diminished, and on this evidence a diagnosis of hepatic cirrhosis was made (See Chart 6)

In both these cases it may fairly be claimed that the lævulose tolerance test was one of the most important factors in reaching the diagnosis

2 *As a Means of Controlling Treatment* —Two circumstances will be mentioned in which the lævulose tolerance test might be of service in controlling treatment In cases where carcinoma of the stomach is diagnosed the question at once arises as to the operability of the condition Secondary deposits in the liver are a definite contra-indication to operation and these cannot always be excluded on clinical grounds In a case of undoubted carcinoma of the stomach the demonstration of a high lævulose curve would seem to point unquestionably to the presence of secondaries in the liver—and therefore to the inadvisability of laparotomy Again, in the administration of toxic drugs such as the arsenical compounds, the lævulose tolerance test might furnish valuable information as to the condition of the liver It is known that liver damage may occur or may be suspected even in the absence of jaundice In these cases the lævulose tolerance test would undoubtedly be of assistance and might prove of value in determining the dosage of the drug to be employed

3 *As a Guide to Prognosis* —The test is of value in this direction in that it furnishes a definite and scientific indication of the actual degree of liver damage

Conclusions

1 In a series of 53 cases the lævulose tolerance test for hepatic efficiency has shown consistent results

2 In ten normal cases the average rise of the blood-sugar curve above the fasting level after a dose of 45 g of lævulose by mouth was 8 mg per 100 c cm of blood Normally there was a return to the fasting level within one and a half or two hours

3 In cases of disease of the liver there was a definitely atypical reaction to a dose of lævulose The blood-sugar curve was abnormally high and maintained, the peak of the curve being reached about one and a half hours after the commencement of the test There was no return to the fasting level at the end of two hours The height and duration of the rise in the blood-sugar was in proportion to the degree of liver damage

4. The test is therefore of considerable value as an index of the functional capacity of the liver

5 In certain cases the test may be of considerable practical value as an aid to diagnosis, as a means of controlling treatment, and as a guide to prognosis.

Finally, the writer wishes to express his thanks to the physicians and surgeons of the London Hospital who have permitted their cases to undergo investigation, and to Dr P N Panton and Dr J R Marrack for their kind help and suggestions

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Amalgamation of Bristol Hospitals —It has been decided that the Bristol Royal Hospital for Sick Children shall in future be worked in conjunction with the Bristol Royal Infirmary, and the professional staff amalgamated

Prince of Wales's General Hospital —This hospital at Tottenham, which, with its home of recovery at Nazeing, has 220 beds, is seriously in need of an extension of its out-patient department, which has not been enlarged since the time when it treated only one-third of the present number of patients The well-to-do population of the district has been replaced by a working class one, with grave results to the income

TWENTY-FOUR CASES OF RINGWORM OF THE SCALP TREATED BY THALLIUM EPILATION

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THE following brief account of a number of cases of tinea tonsurans treated by means of thallium epilation may be of some general interest. The method is so simple that it is not improbable that this treatment will replace to some extent the more commonly used Röntgen ray epilation.

The action of thallium acetate in producing epilation has been well known for many years, and R. Sabouraud about 30 years ago used the drug for this purpose in the treatment of scalp ringworm. As a result of his experience, however, he concluded that the therapeutic use of thallium was unsafe. Perhaps he used unnecessarily large doses. At all events it was given up.

The credit for placing the treatment on a sound practical basis belongs to A. Buschke, who by means of experimental work on animals carried out by himself at first and later in collaboration with Bruno Peiser and others[1] over a number of years succeeded in determining the exact dose of thallium acetate per kg. of body-weight which is required to produce epilation of the scalp. In the first place they point out the obvious disadvantages of X ray epilation, particularly in very young children—namely, that unless an exact epilatory dose be given, one of two things will happen: with imperfect technique portions of the scalp may receive too small a dose, epilation will not be complete, and the ringworm will not be cured; with an overdose, however slight, more or less permanent cicatricial alopecia may result. Further, they point to the not infrequent temporary damage to the skin following X ray irradiation. It is particularly difficult, of course, to epilate children under 3 years of age, for such very young children will not usually keep still for the time that is necessary for the epilation dose.

The advantages of making use of the elective action of thallium acetate in producing epilation were obvious, but a dose had to be found that would be non-toxic and yet effective. So after Sabouraud's therapeutic failures Buschke, and afterwards Buschke in collaboration with Peiser, undertook the experimental work over a period of 20 years which succeeded eventually in establishing the precise dose required and the best method of administration. On the basis of their experiments R. E. Cicero and others in Mexico made practical tests of the use of thallium on a large number of children suffering from ringworm of the scalp; a batch of 345 children were all treated successfully by this means, and equal success was reported in the treatment of a further group of 200 children. Reference is further made to groups of 104 and 40 children treated in Italy, all with success.

Reports of complications by some who have used the method are referred to in these papers, but these have been rare and slight in nature, consisting of slight albuminuria, joint pains, headache, and vomiting. Buschke suggests that these cases may have received too large a dose, and he states that he has himself never observed the smallest ill-effect.

The actual dose of thallium acetate required was established by Buschke to be 8 mg. per kg. of body-weight. Some have used 8–9 mg. per kg. of body-weight. A single dose is given by mouth in sweetened water. The hair begins to loosen in six to eight days, and complete epilation has taken place by the nineteenth day. Buschke also tried the combined effect of thallium and X ray epilation, using 4 mg. of thallium per kg. and 1/3 H.E.D. X rays. The result was prompt and satisfactory epilation without injury or complication of any sort. Toxic effects have been observed as the result of giving a second dose of thallium; but Buschke thinks that the second dose must have been given too soon. He considers that two and a half months is a necessary period to allow if the first epilation has failed.

Report of Cases.

A very few words will suffice to deal with our own results. We have simply followed Buschke's method of administering thallium acetate in sweetened water, giving 8 mg. per kg. of body-weight in some cases, and *8.5 or 9 mg. in others.*

We have dealt with 24 cases altogether. At first they were kept under observation for 24 to 48 hours. Later we concluded that this early observation was unnecessary and simply instructed the parents to keep the children in bed for a day. However, as will be pointed out later, confinement to bed during the whole period of treatment may be more desirable. As albuminuria may be a complication of thallium treatment, it is evident that its use in a case suffering from any renal affection is contra-indicated. A preliminary urinalysis has therefore been made in each case. Epilation has been satisfactory in every case treated with 8.5 and 9 mg. per kg.; with 8 mg. epilation has been just short of complete in a few cases. Unfortunately, we have not yet been able to get the biologically standardised thallium acetate used by Buschke, but we intend to obtain this preparation if possible for future use.

The ages of our patients have varied from 2 to 12 years of age. It is hardly necessary to add that epilation of itself does not cure ringworm, and a fungicide ointment has of course been used in combination with the thallium treatment. We have found that the hair which begins to loosen after six to seven days falls rapidly at about the twelfth day, and by the nineteenth day epilation is complete except for some sparse unpigmented hairs of the lanugo type which are found particularly near the hair margin and which never fall. In a few cases it has been found that the infected stumps do not fall as readily as the normal hair, and it has been necessary to resort to other measures to extract them. The same difficulty arises in some cases treated by X ray epilation, and the usual method is to extract these stumps by means of strapping. The method successfully followed in two cases of the present series has been daily application for four days of liq. ferri perchlor. fort. This forms a crust which adheres to the affected areas, and when this is washed off the remaining hairs are extracted. The hair has begun to grow again almost immediately in the form of down. Unfortunately, we are not yet able to state from our own experience how long a period must elapse before full regrowth is established. Buschke, however, states that regrowth has never failed in any case and is usually fully established by three months from the commencement of treatment.

Toxic Effects.

While no toxic symptoms have been noted in the first week of treatment, these unfortunately have not been entirely absent in the second and third weeks. Headache has been observed in one case in the third week, and some loss of appetite and pains in the joints in five cases in the second and third weeks. The knees and feet have been chiefly affected, and in one case the fingers. These symptoms have been relieved by rest in bed. They have lasted for eight to ten days. Curiously, these toxic effects have only become evident in quite recently treated cases, and it appears possible that the explanation may partly lie in the fact that the same thallium preparation has been used for some six weeks, and may have deteriorated It seems therefore, clear that it will be advisable for the future to obtain a freshly made, biologically standardised, and absolutely pure preparation of thallium, in order that the smallest possible effective dose may be given, and to keep the patients in bed during the whole period of treatment

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[1] A résumé of the experimental work carried out by these authors and of the therapeutic tests made by them and by others may be found in the Dermatologische Wochenschrift of July 3rd, 1926, and in a paper by the same authors in the Urologic and Cutaneous Review, August, 1926.

This treatment will clearly be especially useful (1) in cases where X ray epilation is undesirable or impracticable, as, for example, in children under 3 years of age (2) In cases for which X rays have already been used without success One case may be cited as an example of the latter class

A girl of 6, an Australian, came under observation 17 days from the time of writing She had been treated for ringworm of the scalp by X ray about four months before In this case there had been not only a severe inflammatory reaction as a result of the irradiation but epilation had partially failed, and the ringworm had persisted

The patient's mother had taken a passage to Australia and it was urgently necessary that she should sail in three weeks The child was given 8 5 mg per kg of body-weight immediately She has epilated successfully in 16 days In this case no toxic symptoms of any kind have occurred

It will be possible to report on a larger group of cases in the near future, including some in which thallium has been used to supplement partially epilatory doses of X ray

Clinical and Laboratory Notes.

A CASE OF

PNEUMOCOCCAL MENINGITIS,

WITH COMPLETE RECOVERY FOLLOWING SERUM TREATMENT

By Alan S Simpson, M B , B S Lond ,

HOUSE PHYSICIAN, BELGRAVE HOSPITAL FOR CHILDREN

In the July issue of the *Archives of Pediatrics*, 1926, two American writers, Ratnoff and Litvac, have described a case of pneumococcal meningitis treated with Morgenroth's optochin hydrochloride. They review the literature of the subject and give a mortality of 95 per cent , and they indicate the lines of treatment in eight reported cases of recovery recorded during the last decade Their patient, a girl aged 7½ years, was admitted with a provisional diagnosis of cerebro-spinal fever, she was given antimeningococcal serum, and after this, repeated injections of antipneumococcal serum followed by a course of injections of Morgenroth's optochin hydrochloride , recovery resulted

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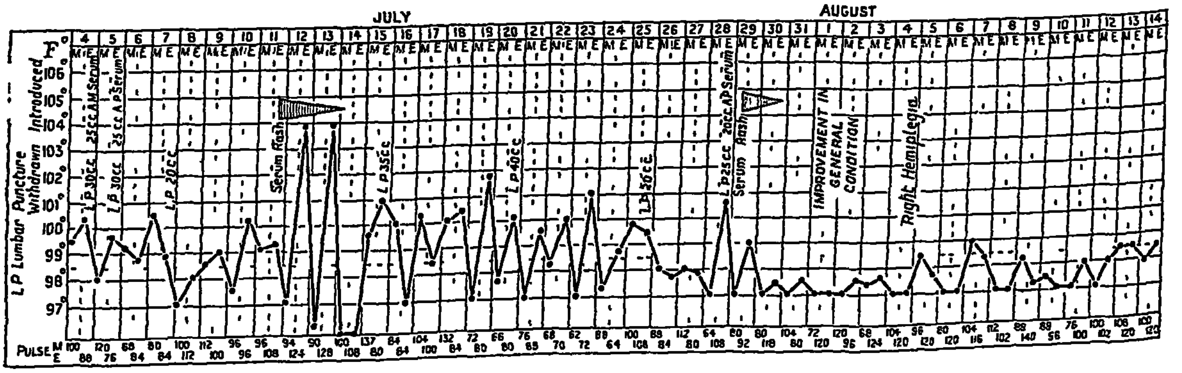
Lumbar puncture revealed a turbid fluid under increased pressure , a tentative diagnosis of cerebro spinal fever was made, and 25 c cm of antimeningococcal serum were given intrathecally, 30 c cm of C S F being previously withdrawn

The pathological report was 540 cells per c mm , polymorphs, 80 per cent ; lymphocytes, 20 per cent , total protein, 0 2 per cent , chlorides, 0 6 per cent No glucose Pneumococci were found in the direct smears and cultivated, but were not typed

On the next day (July 5th) 30 c cm C S F were withdrawn and replaced by 25 c cm of polyvalent antipneumococcal serum Two days later he showed marked improvement, the retraction was less and he began to take an interest in his surroundings , lumbar puncture showed the fluid to be much less turbid but no cell count was done Four days later (i e , on the eighth day after admission and his first dose of serum) he had headache, joint pains, a generalised urticarial rash, and was drowsy, but had no head retraction This serum reaction lasted over two days

Following the serum reaction his condition altered very little during the next 14 days , he complained of headache, ran an intermittent temperature, and had slight head retraction , marked constipation was a constant feature Three lumbar punctures were done during this period and the fluid remained turbid On July 28th a sensitising dose of antipneumococcal serum was given subcutaneously and later 25 c cm of C S F were withdrawn and 20 c.cm of antipneumococcal serum introduced An immediate reaction occurred on the following day The optic discs showed at this stage a slight papillœdema of the left disc In three or four days he began to show improvement, the temperature settled down, headache ceased, and head retraction became less On August 4th a right-sided hemiplegia was noticed, involving the arm and leg of that side , the reflexes on the right side were absent, including the abdominals, and the limbs were flaccid His general condition was good and he took an interest in his surroundings, but could not or would not speak at all A fortnight after the onset of the hemiplegia he suddenly began to speak, under emotional excitement his mother being present From then onwards his speech and hemiplegia made rapid improvement, and in three weeks he gained 6 lb in weight On Sept 10th he was discharged quite well, and "walked out" of hospital

Apparently this was a primary pneumococcal meningitis, though not very acute, in so far as the febrile symptoms were concerned There was never any evidence of a focus of infection in the ears, fauces,



Temperature chart of a case of pneumococcal meningitis with recovery or respiratory tract and the labial herpes was such as is frequently seen in pneumonia In a primary case mentioned by Dr. E Cautley in his 'Diseases of Children,' the boy, aged 9 months had an acute illness which ran a course like that of simple croupous pneumonia, the temperature falling by crisis on the tenth day and ending in recovery. The diagnosis was verified by lumbar puncture but no serum treatment was adopted An interesting feature of the above case is the right hemiplegia of flaccid type associated with an aphasia which cleared up synchronously.

I wish to thank Dr. Cautley for assistance and kind permission to publish this case

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A CASE OF
'SONNE' DYSENTERY IN ENGLAND.

BY F H A CLAYTON MD MRCP.EDIN,
LECTURER IN BACTERIOLOGY UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

As a result of his investigation into the occurrence of dysentery in Denmark, Carl Sonne[1] described, in addition to the well-recognised Shiga and Flexner groups a third variety, found in mild cases, which differed from them both culturally and serologically The accuracy of his observations has since been confirmed by F d'Herelle[2] in France T Thjötta[3] in Norway, and H Oehnell in Sweden A similar organism has been studied in Australia by S W Patterson and F E Williams[4] and recently a considerable outbreak of illness due to it has been described in Aberdeen[5] but in England it had not been met with until H. A Channon[6] in 1925 obtained it from the fæces of a man who gave a history of previous dysentery in Egypt

The Present Case.

The patient a lady resident in a seaport town in Durham appears to have suffered for some time from intermittent attacks of abdominal pain and discomfort. The present exacerbation began early in September 1926 and was marked by considerable pain on the right side and symptoms sufficiently suggestive of appendicitis to call for a surgical opinion although operation was not considered advisable Frequent scanty motions containing blood and mucus and attended by tenesmus then troubled the patient and on Sept 8th a specimen of fæces was brought direct to the laboratory of the College of Medicine by a consultant physician of Newcastle-on-Tyne who had been called in The specimen arrived within an hour or two of its passage.

Under simple treatment the condition soon improved, and in a few days the patient was said to be practically well, and although she has apparently had one or two "threatenings" she has so far as is known had no further definite attack

Examination of the Stool.

Macroscopically the stool seemed to consist almost entirely of mucus and bright blood with a little greenish fæculent matter Films showed large numbers of polymorphonuclear cells some macrophages epithelial and red blood-cells and a few crystals but no cysts or amœbæ and but few organisms

From MacConkey plates, sown with washed flecks of mucus six out of a considerable number of clear white colonies were isolated and were found to give, after 24 hours' incubation the reactions of *Bacillus dysenteriæ* (Flexner) which were maintained for some six days At about the end of that time a distinct acidity which persisted became apparent in litmus-milk and this was followed by the slow production of acid in lactose and a day or two later in saccharose No indol could be demonstrated and agglutination against the Oxford sera for the five strains of *B dysenteriæ* (Flexner) proved entirely negative The patient's own serum was then obtained and agglutinated the organism isolated up to 1 in 125 a fact suggesting that infection had predated the present train of symptoms the serum failed however with the five Oxford Flexner emulsions to give more than a very doubtful trace with "Y"

Two strains of the 'Sonne' bacillus (Nos 268 and 269) were obtained from the National Collection of Type Cultures and were found to give precisely similar cultural reactions, the only difference being that acid appeared in lactose and saccharose a day or two earlier One cultural characteristic, of which no mention has been seen but which was noted with all three strains was the occurrence of lateral branchings in gelatin stabs

From one of the type Sonne strains (No 268) and from the organism isolated anti-sera were prepared in the usual manner. Neither appeared to possess great antigenic potency but no difficulty was experienced in producing, with dead organisms sera which would agglutinate 24-hour broth cultures up to 1 in 600 or 700 The agglutination is rather fine as was noted by Thjötta and is best seen with the Oxford dark-ground apparatus devised for the purpose Cross-agglutination experiments showed almost identical results with all three organisms except that type strain 268, even with its own serum, seemed slightly less agglutinable than the other two Cross-adsorption was equally conclusive as with each serum the heterologous as well as the homologous strain removed practically all the agglutinins for both

There seems no doubt therefore that this is the "Sonne" bacillus and inquiry was made as to any connexion with Aberdeen or the Scandinavian countries and whether there was any possibility that residents in the house, either visitors or domestics coming from these places might have filled the rôle of carrier No very definite information was obtained, but it was gathered that the patient herself, her husband—who had also suffered from abdominal symptoms—and an intimate friend had all, at an unspecified date been in Aberdeen

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[1] Giftfattige dysenteribaciller 1914 Copenhagen
[2] Ann de l'Inst Pasteur 1916 xxx 145
[3] Jour Bact 1919 iv [illegible] 1921 vi 501
[4] Jour of Pathology and Bacteriology 1922 xxv 393
[5] Smith J Jour Hyg 1924 xxiii 94 1926 xxv 453
[6] Jour Pathology and Bacteriology, xxix 496

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOLOGY

AT a meeting of this Section held on Feb. 5th Dr DAN MCKENZIE the President, occupied the chair, and Dr E FARQUHAR BUZZARD contributed a paper (read in his absence by Mr T. B LAYTON) on the

Treatment of Traumatic Facial Palsy

The principles governing the treatment of all lesions affecting the lower motor neurones must, he said apply to lesions of the facial nerve, but the path of the nerve through the temporal bone, where trauma might be caused created difficulties which deserved attention In certain cases it was impossible to say whether the nerve had been completely divided or whether it had been lacerated bruised crushed, or merely exposed to inflammation in adjacent tissues Speaking generally a facial palsy, the result of a lesion of the nerve in its course through the temporal bone did not require operation and all that had to be considered was whether other measures would be likely to help recovery

There were two main groups of these cases of facial palsy, continued Dr. Buzzard In the first were cases in which the lesion did not cause reaction of degeneration and in which there was some return of function however slight within three weeks of the palsy commencing In these cases it was evident that the nerve's function had been only temporarily suspended Probably little help resulted from treatment in these cases, but gentle rubbing of the facial muscles and attempts to move the face somewhat helped restoration When inflammatory disease persisted there was a somewhat longer delay in recovery In the second group of cases reaction of degeneration was present three weeks from the commencement of the paralysis and only the passage of time would show whether recovery was possible. No evidence of it was seen for at least three or four months, and by no known means could regeneration be hastened Efforts should be devoted to preserving the nutrition and contractility of the muscles concerned and to preventing disfiguring contractions. It was desirable to use a simple apparatus designed to prevent the mouth being drawn over to the opposite has been used for some six weeks, and may have deteriorated It seems therefore, clear that it will be advisable for the future to obtain a freshly made, biologically standardised, and absolutely pure preparation of thallium, in order that the smallest possible effective dose may be given, and to keep the patients in bed during the whole period of treatment

This treatment will clearly be especially useful (1) in cases where X ray epilation is undesirable or impracticable, as, for example, in children under 3 years of age (2) In cases for which X rays have already been used without success One case may be cited as an example of the latter class

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The patient's mother had taken a passage to Australia and it was urgently necessary that she should sail in three weeks The child was given 8 5 mg per kg of body-weight immediately She has epilated successfully in 10 days In this case no toxic symptoms of any kind have occurred

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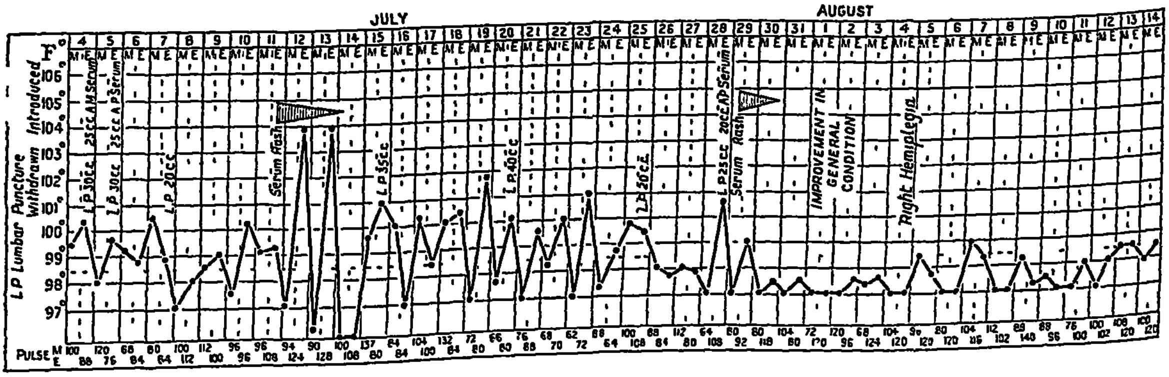

Temperature chart of a case of pneumococcal meningitis with recovery pyramidal tract—i.e., absent or diminished abdominal reflexes, increased tendon-jerks, and a plantar response which was either extensor or doubtful. The third sign, less constantly present, was of great value when found—namely, defect in the visual field owing to the optic radiation being involved. When abscess was suspected the visual fields should always be examined.

With cerebral abscess, went on Dr. Symonds, the cerebro-spinal fluid was clear and contained from 18 to 95 cells per c.mm., mostly lymphocytes. The chloride content was normal and sugar-reducing bodies were present. A preponderance of polymorphonuclear cells in the fluid, with diminution of chlorides and absence of sugar-reduction, usually indicated meningitis, and leakage into the ventricular system or the subarachnoid space.

In the course of formation of an abscess there must be a presuppurative stage of inflammation, and he suggested that arrest could be produced at this stage without pus formation being reached.

Discussion.

The PRESIDENT said that in the books it was stated that nystagmus was not noted in 70 per cent. of cases of cerebral abscess. It was sometimes very difficult to detect, especially in a stuporose patient. If the attention of such a patient could be directed to the same side as the lesion the eyeball would be seen to return slowly to the midline. When there was a discharge from the ear in cases of encephalitis lethargica it was apt to be assumed that cerebral abscess was present, and operation might be performed.

Sir JAMES DUNDAS-GRANT spoke of the importance of being able to recognise superficial abscess.

Mr. F. W. WATKYN-THOMAS described a case of abscess over the right lateral sinus, which was drained. Following the operation definite aphasia developed, this being the only case in which he had seen aphasia in such a condition. The patient died and the course of the infection could not be traced. At autopsy a definite depression was found over the anterior portion of the Sylvian fissure, over the foot of the Rolandic area, and extending to the frontal. In none of the kind of cases under discussion did there seem to be evidence of "crossed-deafness," or of pure word-deafness.

Mr. SCOTT emphasised the importance of withdrawing only a minimal quantity of cerebro-spinal fluid in these cases. In one case a surgeon withdrew two test-tubes full of fluid, and unconsciousness and arrest of breathing followed. In regard to aphasia, he preferred the term "naming amnesia." The patient should be asked to name quite a number of objects. Leucocytosis in the blood was important in distinguishing non-suppurative cases of localising encephalitis.

Mr. LESLIE POWELL pointed out the importance in a very sick man of doing the mastoid operation first and waiting a day or two before opening the abscess.

Sir WILLIAM MILLIGAN emphasised the value of Dr. Symonds's comments on non-suppurative encephalitis, which might be due to circumscribed serous meningitis.

Mr. JENKINS spoke particularly on the cases having a big accumulation in the subarachnoid space, which were often diagnosed as abscess of brain tissue.

Dr. SYMONDS replied.

SECTIONS OF OPHTHALMOLOGY AND NEUROLOGY.

A JOINT meeting of these Sections was held on Feb. 11th, under the chairmanship of Mr. ERNEST CLARKE, President of the Section of Ophthalmology. A discussion on the value of

Present Day Use of Treatment in the Late Stages of Ocular Syphilis

was opened by Mr. J. H. FISHER, who commented on the swing of the pendulum noticeable in the drug treatment of syphilis during the last two or three years. It had, unfortunately, become common to order grey powder in tablet form, so that it was passed undissolved, and to give iodide of potassium in minute doses of 3 or 5 gr. when at least 30 gr. were required. A more intimate association between ophthalmologist, physician, neurologist, and surgeon was desirable; not a few cases of enlarged glands, arthritis and bone disorders, previously diagnosed as tuberculous, would have been revealed as syphilitic by ophthalmoscopic examination. The efficacy of Donovan's solution, such drugs as atoxyl and soamin, and Ehrlich's discovery of salvarsan and neosalvarsan had caused the pendulum to reach an extreme. The conclusion of those qualified to judge, however, had been that the older drugs were still essential for the cure of the disease, and that the Wassermann reaction could only be a useful adjunct to the other means of diagnosis. Modern methods and modern drugs varied within wide limits, and every syphilologist appeared to have laid down his own course of treatment. The increased readiness of patients to seek treatment, the facilities for obtaining it, and its more efficient administration must not be forgotten in estimating the value of modern methods. A true comparison could only be made when properly organised statistics of late manifestations and syphilitic nervous diseases had been compiled.

Among the late manifestations of syphilis in the eye were iritis, scleritis, disseminated choroiditis, interstitial keratitis, and ophthalmoplegia; also diffuse neuro-retinitis with dust-like opacities in the vitreous. This last seemed to be less common than when the speaker had begun his work, and the improvement might well be the result of the more thorough and systematic treatment of the disease in its primary stage. The new injection treatment had been of great value in secondary syphilitic iritis, since the antidote was brought directly to the vascular iris by the blood stream. For the same reason it should be more efficient in preventing the lodgment of the spirochaete in the vascular choroid. Interstitial keratitis from acquired syphilis arose from 5 to 29 years after the primary infection, and never attacked the other eye. The manifestation in the cornea was always (1) deep invasion of the corneal layers with ciliary injection at the base of a tongue-shaped area of advancing haze, and (2) extension to deep vessels. Inunction with mercury had always cleared up the trouble, and the use of the eye was preserved if treatment were started early. In interstitial keratitis from inherited syphilis, however, no kind of treatment arrested or modified the disorder. It had been observed that treatment was of more use in cases where dense vascularisation of the cornea had occurred; if this were so the reason would be that the drug, since introduced intravenously, passed directly to the site of the inflammation. The reason why anti-syphilitic methods were so powerless in keratitis of inherited syphilis might be that the whole tissues of the cornea were impregnated with the spirochaete or its products from the time of conception, whereas in the acquired form the condition was only the chance lodgment of a single focus.

Neurological Disorders.

He was sure that it was possible to delay the advance of optic atrophy in tabes by a thorough course of mercurial treatment, particularly where a well-maintained field had been present when the patient first came under treatment. It must be remembered that many tabetics showed temporary diplopias which certainly cleared up under the older forms of treatment, but ophthalmoplegia dependent upon nuclear degeneration might also be limited by the early circulation of the antidote in all parts of the basal nerve stem. In the same way vascular disorders might be prevented, including aneurysms and sclerotic changes. Gummatous meningitis had always been amenable to the energetic administration of mercury and potassium iodide.

Dr. J. PURDON MARTIN dealt with the neurological symptoms of late ocular syphilis, which followed the side and the stretching of the muscles at the corner and upper border of the mouth Muscular nutrition and contractility could be preserved by massage and by the make and break of the galvanic current With the return of voluntary movement the best course was a re-education of the muscles in front of a mirror; other measures could now be suspended. Sometimes at this stage there ensued postparalytic contracture, with some permanent shortening of muscles, and a failure to control the facial expression properly occasionally with awkward results It was difficult to say during what interval massage and galvanism was advisable in the hope that regeneration of the nerve would occur; but usually, if there was no response to faradism at the end of six months, further massage and electricity seemed useless He had not yet had sufficient experience of anastomosis of the nerve to enable him to form a very definite opinion on it

Discussion

The PRESIDENT thought that the decision whether or not to carry out anastomosis could best be reached by considering the cause of the paralysis in the particular case Recovery was likely when the cause of the trouble was that the nerve had been struck by a blunt instrument But if during an operation the nerve was severed by a blow from the mallet or a sharp chisel it was difficult to know what would happen to it In most of the cases he believed recovery would follow if it was left alone Anastomosis was still in the experimental stage, and every effort should be made to perfect it, then, perhaps, dependable rules could be laid down At present even the most successful operation of anastomosis did not restore complete emotional expression

Mr A J. M WRIGHT and Mr SYDNEY SCOTT thought that six months was too short a time-limit for recovery, and Mr Scott referred to a case of his own in which restoration took place after three years.

Sir WILLIAM MILLIGAN remarked on the comparative rarity of postoperative facial paralysis in this country, which he considered was a tribute to the care mostly exercised in these operations. Sometimes injury to the facial nerve was due to the subsequent dressing, perhaps to packing too tightly, or to the use of caustics He considered that six months was too short a time-limit for recovery, and had seen a patient completely recover after two years of paralysis He had never seen such complete recovery after anastomosis as that which nature could bring about unaided

Mr. E WATSON-WILLIAMS alluded to the prognostic significance of the time at which facial paralysis came on. If it was manifest at or immediately after the operation the paralysis was likely to be more serious than when two or three days elapsed between the operation and the beginning of the paralysis He had especially noted the difference after labyrinthectomies, and for that reason hesitated before doing the operation The profession owed a debt of gratitude to Sir Charles Ballance for his work on the anastomosis of nerves, and for pointing out what nerves could be spared Mr Watson-Williams had twice divided the glossopharyngeal nerve, and in neither case had the patient suffered any inconvenience That particular nerve, strange to say, would take on a motor function

Sir JAMES PURVES-STEWART said that he did not think that trauma in the middle ear, whether surgical, accidental, or suppurative, was amenable to anastomosis, because the trouble was in the Fallopian aqueduct The cases in which operative intervention was justifiable were those in which the nerve was healthy down to the stylomastoid foramen It was of no use to anastomose a sensory nerve to the distal end of the facial nerve With regard to the selection of the nerve for anastomosis, the hypoglossal was more easy to identify and deal with than the glossopharyngeal, and the spinal accessory was easier still

Mr G J JENKINS referred to a case in which anastomosis of the descendens hypoglossi gave a fairly satisfactory result four years after facial paralysis began

Sir JAMES DUNDAS-GRANT spoke of recovery of traumatic facial paralysis after digital massage, also after mild galvanic stimulation by the anodal pole of the battery

Mr M E VLASTO said that after the performance of anastomosis there was a loss of the former tone of the muscle The comparative infrequency of traumatic facial paralysis in this country he attributed to the greater operative timidity of British in comparison with continental and American surgeons

Mr LIONEL COLLEDGE said that in the cases which were going to recover there was usually evidence of improvement within four months Recovery was improbable after the lapse of six months though it occasionally occurred In doing anastomosis it was very important to use the whole nerve, end-to side anastomosis was not likely to restore dissociated movement

Dr C P SYMONDS said that a possible explanation of some of these cases of long-delayed recovery was that there was a functional perpetuation of what had been an organic disability If a patient were merely a passive agent and the doctor was content with massage and electricity there was a danger that when regeneration occurred he would not exploit it properly Exercises before a mirror were very valuable

Dr SYMONDS then read a paper on

Diagnosis and Localisation of Cerebral Abscess,

confining his attention to abscess arising from suppuration in the ear and situated in the dural membrane In the early stages of abscess formation, he said, usual symptoms were fever, rapid pulse, malaise, and anorexia, suppurative encephalitis and severe headache sometimes followed, with vomiting and drowsiness with the increased cranial pressure Commonly the suppurative process became localised and an abscess cavity with tough walls was found There was then no diffuse encephalitis The headache was increased by stooping and coughing Severe headache, vomiting, and drowsiness, with slowing of the pulse, showed that obstruction had occurred to the outflow from the ventricles, with internal hydrocephalus, and the result might be fatal In the early stages it was usually necessary to rely for the diagnosis on the signs of local damage caused by the abscess

The localising signs of cerebral abscess could be considered under (1) cerebellar, (2) left temporal (3) right temporal In the first of these, suboccipital headache was important, but later it was usually bifrontal or general Generally the abscess was deep in the lateral lobe, and then there was incoördination of movement in the limbs on the same side The simplest method of examination was that by the nose-finger test, the examiner's finger being shifted each time, and the response of the patient being required quickly Another valuable sign was nystagmus, there being a tendency for the eyes to swing away from the side on which the cerebellar lesion was situated In abscess of the left temporal lobe (in a right-handed person) the valuable localising sign was aphasia This sign might not be present when the abscess was far forward in the lobe, but it was an early sign when the abscess was in the middle or the posterior third Though a patient suffered from definite aphasia he might yet be able to converse without apparent difficulty The appropriate method must be used to detect this The patient should be asked to name quite a number of articles There were only three signs of value of right-sided temporal abscess in a right-handed person One was slight weakness on the opposite side of the face, shown on smiling less evident when the patient is asked to show his teeth The second group of signs were those of pressure on the

General Discussion

Colonel L. W. **Harrison** said that if mortality were a guide to morbidity it seemed probable that congenital syphilis would become rarer. The statistics of the Registrar-General showed a marked drop between 1917 and 1924. He thought the treatment of interstitial keratitis in congenital cases well worth while though disappointing. At Rochester Row good results had followed subconjunctival injections of salvarsanised serum. For gummatous manifestations he believed that potassium iodide was very valuable to clear up the mess after the spirochætal activity had been stopped by a spirochætocidal remedy. He was sure that the omission of mercury or bismuth from the treatment of early cases increased the incidence of ophthalmoplegias later. By far the majority of the cases were in patients who had been treated by arsenobenzol alone. He had compared the results at the St. Thomas's Hospital centre with those of the Johns Hopkins Clinic. At the former mercury and bismuth were combined with arsenobenzol and there had been no case of cranial nerve palsy. At the latter they had used "606" alternately with courses of mercury inunction, and out of 2500 cases had had 58 neuro-recurrences, including cranial nerve palsies. Arsenobenzol gave good results when given subcutaneously or intramuscularly; in fact by these routes the tissues were given more time to form that derivative of the drug which was spirochætocidal. He pleaded for perseverance in treatment; 20 injections of both drugs should be given after the Wassermann reaction became negative.

Dr. N. **Pines** described his successful results in interstitial keratitis with the intravenous injection of sodium iodide in large doses. The cornea cleared up rapidly and the patients never showed signs of iodism.

Dr. **Gordon Holmes** did not agree that the optic atrophy of general paralysis of the insane and tabes must necessarily lead to blindness; many cases preserved their vision for years, especially under treatment. The essential lesion was an interstitial syphilitic process associated with primary degeneration of a certain number of nerve-fibres—i.e., a cellular infiltration in the nerve, usually along the pia and especially marked about the region of the optic foramen. In this case the prognosis should not be so bad. In 1919 he had selected 20 cases and treated half of them with arsenic or arsenic and mercury together, and half with mercury alone. The result had left no doubt that arsenic was relatively ineffective and that mercury in full physiological doses up to mild salivation, was necessary to get results. He did not agree that self-inunction was useless. Bismuth was more useful in the ocular palsies, especially those of tabes. From the neurologist's point of view it was a pity that Ehrlich had ever discovered the arsenical preparations.

Mr. **Lindsay Rea** showed slides illustrating a number of conditions including interstitial keratitis, exudate in the vitreous, papillœdema, and gumma at the side of the cornea, which had cleared up under N.A.B. He would not admit that nothing could be done: the case should be treated early with N.A.B. followed up by mercury and iodides. The Wassermann reaction must not dominate the treatment, and the Lange gold reaction must be taken. The constitutional condition of the patient must not be forgotten and treatment must be continued for years in small doses. Big doses did harm.

The **President** remarked on the importance of teaching the public that they must continue treatment.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH

On Feb. 1st Dr. **James Orr** gave an address on the later views of Sir James Mackenzie on the

Nature of Cardiac Action,

with particular reference to the phenomena of heart-block. Mackenzie's work, he said, had been the subject of adverse criticism, mainly on the ground that it was purely speculative. Mackenzie was a speculative thinker, but the views he expressed latterly were based upon prolonged clinical observation. In view of this criticism it was important to examine his position critically in the light of modern experimental research. This position was distinctive in its conception of the Purkinje system of the heart—the nodes and bundle—as the regulating and controlling structure of the organ. The cardiac muscle only contracted in response to stimuli reaching it from this source, and conduction in the bundle was attained, not by the passage of an impulse along a conducting structure, as that term was generally understood, but by successive stimulation of contiguous cells in the bundle, each one discharging an individual impulse. For this reason Mackenzie described the nodes and bundle as the "genetic" system of the heart.

Recent experimental work, said Dr. Orr, had led to general agreement that the S.-A. (sino-auricular) node was normally responsible for initiating the cardiac contraction. As regards the spread of the excitation wave through the auricle, the balance of evidence, having regard to direction and spread and rate of transmission, was greatly in favour of a spread through the auricular muscle. A spread between the S.-A. and A.-V. (auriculo-ventricular) nodes by means of a distinctive path had not been demonstrated, though an experiment by Mines showing the persistence of electrocardiographic deflections after the abolition of muscular contraction, was suggestive.

In the ventricle there was no doubt, Dr. Orr continued, that the spread of excitation was accomplished by means of the bundle and its ramifications. The question centred upon the means by which this spread was accomplished, whether by simple conduction or by cell stimulation. Experimental observation made it clear that the A.-V. node could not be regarded as a simple conductor, and that it acted as a centre for the discharge of impulses. The phenomena of the nodal extrasystole and of reversed heart-block demonstrated this conclusively. With regard to the bundle, question arose as to the source of the ventricular beats in complete auriculo-ventricular dissociation. That there was no set ventricular rate was shown by the fact that in a single individual who was subject to complete heart-block, the ventricular rate varied at different times from 30 to 45 per minute. The electrocardiogram in conditions of complete heart-block showed that the excitation wave entered the ventricle supra-ventricularly. It presumably had its origin either in the A.-V. node or in the supra-ventricular part of the bundle, immediately peripheral to the lesion. This view was accepted by many experimental observers and the trend of recent work seemed to be in the direction of regarding the whole Purkinje system as essentially a stimulus-producing structure. Mackenzie's conception of the Purkinje system as a genetic structure afforded a complete and consistent explanation of the phenomena observed experimentally and clinically. The only alternative was to regard it as a conducting mechanism which, in certain circumstances, acquired the capacity of producing stimuli.

LIVERPOOL MEDICAL INSTITUTION.

At a meeting of this Institution held on Feb. 3rd Mr. **Frank Jeans** read a paper entitled

Some Problems of Urological Surgery.

Dealing with mobile kidney, he said that very few cases needed operation and those that did, if diagnosed early by pyelography, needed division of the so-called aberrant renal artery and no nephropexy. Most of the real cures of symptoms by nephropexy could have been brought about by division of this artery, a much more physiological operation than the fixation of an organ which Providence had decided should be fairly mobile. He did not believe that mere mobility of a kidney—unless it was liable to obstruction—e.g., same classification as syphilis of the central nervous system into the three divisions of (1) parenchymatous disease of the brain or spinal cord, (2) syphilis of the cerebral adventitia, and (3) the paracentral or tabetic type of neurosyphilis Parenchymatous cerebral syphilis showed itself in the Argyll Robertson pupil and isolated pupillary palsies and irregularities. It resisted chemical methods, but often yielded to the new malarial treatment, in so far as the nerve elements were still capable of recovery Many general paralytics treated in this way showed great ocular improvement The commonest symptoms of adventitial syphilis were papillœdema and palsies due to increased intracranial pressure, which would clear up under early specific treatment Delay, however, allowed the papillœdema and its exudate to increase, and the exudate to organise and become permanent, resulting in a greater atrophy of the nerve-fibres as the œdema subsided

The nervous damage in tabetic or paracentral syphilis, he said, appeared in structures outside the central nervous system in close contact with the meninges and cerebro-spinal fluid, such as the posterior nerve roots and ganglia and the optic nerve In oculomotor palsies the affected nerve was almost certainly involved in this way at the meningeal level The results of treatment depended on its institution as early as possible, or at any rate before the nerve was completely paralysed According to Stargardt, the nerve suffered from the infiltration of its sheath by minute gummata, the chief point of invasion being where the nerve passed through the dura This infiltration generally yielded to iodides and mercury, and unless the nerve-fibres had been killed they would recover Similarly, even if they had been completely interrupted and had started to degenerate, new fibres would grow down on relief of the infiltration and recovery take place in a few months If, however, organised exudate permanently interrupted the path of the fibres, or the ocular muscles degenerated, recovery was impossible The rule in orthopædics was that a muscle from which the nerve-supply had been temporarily cut off should be placed in a position of complete relaxation, as if it were stretched it degenerated quickly. Paralysed ocular muscles, however, were unfortunately in continuous tension, and tenotomy of the opposing muscles was contra-indicated for various reasons Existing drugs were potent enough, and the need was for some way of freeing a passage for the new nerve-fibres and of maintaining the integrity of the paralysed muscle for some months Optic atrophy resisted specific treatment because of the vulnerability and lack of recuperative power of the optic nerve It was not often recognised early enough If, however, it were taken in time, energetic chemical treatment could produce fair results Novarsenobillon in doses of not more than 0 6 g was the drug of election at present, and if more potent remedies were invented the results would be improved Finally, Dr Martin warned his hearers against the snare of the negative Wassermann

The Value of Rest in Optic Atrophy

SIR **ARNOLD LAWSON** said that his war experience of primary optic atrophy had brought his pessimism on that subject to a head Cure was practically hopeless Organic arsenic was in some cases absolutely harmful, for mercury he had nothing but contempt, and iodides in large doses had but a very limited use and were unsatisfactory In primary optic atrophy the degeneration was not the secondary result of an active inflammation, which might itself be cured, so checking the degeneration; the cause was irremediable and we could only hope to arrest the progress of the condition He would like to know the true value of the Wassermann reaction in clinical syphilis Out of 109 men admitted to St Dunstan's with primary optic atrophy 62 had had a positive Wassermann and 20 had been negative, 27 were so bad that treatment was impossible Nearly all had been through military hospitals and had intensive treatment, but there was no trace of difference between those who had been treated and those who had not, unless the former were worse All had gone the same way He suggested that there might be a hope for these cases in skilful, scientifically-applied rest, both general and local, administered in sanatoriums on the lines followed in the treatment of tuberculosis

Dr A **FEILING** spoke of his personal experience, as a neurologist, of affections of the optic nerve and ophthalmoplegias The meningo vascular types tended on the whole to occur earlier and to be more or less amenable to treatment, the primary or parenchymatous degenerative forms were late and very resistant to treatment Occasionally an optic neuritis would occur without any other signs or symptoms in the nervous system, and the Wassermann reaction might be negative, but the cerebro-spinal fluid would show the characteristic changes He quoted a case in which treatment had restored the function Much more common was syphilitic optic atrophy He thought that the isolated form, not associated with obvious signs of general paralysis of the insane or tabes, ran a more benign course He had followed a number of cases for periods up to five years, and six of them at least had not progressed after treatment There was a very sharp distinction between nuclear palsies and those associated with isolated muscles and due to syphilitic meningitis In the former treatment was seldom any use, in the latter it would cure, at all events for the time being Internal ophthalmoplegias were very common and occurred without other clinical evidence of syphilis. They could be regarded as syphilitic scars and might take all varieties of form He had never seen the syphilitic Argyll Robertson pupil disappear as the result of treatment, though pupillary reactions might get brisker The Argyll Robertson pupil of other conditions, such as encephalitis and chronic alcoholism, might disappear with treatment He had never seen miosis alter at all He agreed that the cerebro-spinal Wassermann should always be taken in ocular syphilis The treatment he used was intravenous administration of novarsenobillon at weekly intervals, with a month's remission after six doses He had seen one case where decided deterioration in vision occurred after tryparsamide, and many other cases had been reported, but he knew of no signs of visual defect following other kinds of arsenical administration.

The Syphilologist's Point of View

Mr S H **BROWNING** laid emphasis on the importance of treatment by a syphilologist He had treated many hundreds of cases of interstitial keratitis with the new methods of treatment—salvarsan, neosalvarsan, and bismuth—though nearly always combined with mercury He was convinced that they did better with intensive antisyphilitic treatment than without it, and some of his results had been almost dramatic He referred to the work of Carwell and Derby[1] in Massachusetts This work had definitely settled the question in favour of treatment For tabes the treatment resolved itself into a judicious blend of the old and the new, and the individual patient must be considered For the hospital case treatment must involve as little pain and incapacity as possible, or the patient would disappear when the symptoms disapppeared For those who could afford it, however, the Aachen treatment—mercury inunction, baths, mineral waters, &c —was undoubtedly the best, preferably at Aachen He regarded self-inunction as futile For the last few years he had replaced mercury by metallic bismuth with excellent results The treatment of a tabetic involved far more than chemicals The doctor should advise on small matters like clothes, which made all the difference between pain and rest for the patient There was little to be said for the newer remedies in the ideal treatment of late syphilis, but they had their place if the treatment was to be a compromise with the patient's circumstances metabolism of the carbohydrates The section on respiration is one of the finest modern accounts of this system to be found in any students' text-book, and in this new edition practically all the recent work on the subject finds a place The reader naturally turns soon to the section on insulin where he hopes to obtain some glimpses into the history of its discovery, which, as is universally known, was made in Prof Macleod's own laboratories Greater detail on the earlier experiments of Banting and Best would have been appreciated The whole section summarising the work on insulin is well planned, but a fuller description of the chemical properties of the substance and of its distribution in the body would have added greatly to the value of the account For instance, the fact that insulin can be recovered from the tissues of depancreatised dogs is merely mentioned and no reference at all is made to its presence in the tissues of patients dying of diabetes mellitus The section dealing with the adrenal glands is rather disappointing The historical review is somewhat sketchy; from it the student would gather that the earliest workers in this field were Takamine and Abel, and an account of the classical investigations of the older workers, such as Henle, Kruckenberg, and Holme, would have made the section more complete Moreover, the absence of any description of the method of synthesis of adrenalin is to be regretted In the section on the internal secretions of the ovary the important work of Herrmann and Frankel and Allen and Doisy on the œstrus producing hormone prepared from the follicular fluid is ignored C R Harington's observations on the constitution and synthesis of thyroxin may not have reached Toronto until after this work was in the press In a future edition it might be better to replace the illustration on page 27 by one where the E M F is measured by means of an ionisation potentiometer, such as is now on the market

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[1] THE LANCET, 1925, ii, 764

This volume has already proved to be of the greatest value in providing the student with a reliable account of the application of physiology and biochemistry to medicine, and the new edition is likely to be as popular as its predecessors

DENTAL MATERIA MEDICA

Modern Dental Materia Medica, Pharmacology and Therapeutics Fifth edition By J P BUCKLEY, Ph G, D D S, F A C D, Professor of Materia Medica, Pharmacology, and Therapeutics, Chicago College of Dental Surgery London. William Heinemann (Medical Books), Ltd 1926 Pp 586 30s

THIS book is divided into two parts, a section dealing with materia medica and pharmacology, and a section on practical dental therapeutics The first section follows the usual lines of general text-books on materia medica containing accounts of the different types of pharmaceutical preparations, mode of administration, dosage, and so forth It appears to us that this section of the book might have been reduced without impairing its value, since it contains much that is of little moment to the dental student On the other hand, certain drugs of importance in dentistry, notably adrenalin, might well have received fuller treatment. We find no mention either of the strength of the adrenalin which it is advisable to use in local analgesia or the symptoms resulting from an overdose, still less of the remedies appropriate to such a catastrophe. In the section on hæmostatics only the local application of the preparations derived from fibrin ferments and thromboplastic substances is described, though they are much more potent when injected Oil of turpentine, a very old remedy of considerable efficacy, is not mentioned as a hæmostatic. The account of gum tragacanth omits its most important property in dentistry—namely, its power of increasing the retention of dentures when sprinkled on the surface applied to the palate We might quote many other examples in which the treatment of drugs of especial use in dentistry appears to be too brief, while many sedatives and cathartics only occasionally used in dentistry are fully considered

The second section on practical dental therapeutics comprises half the book and is the more interesting part, containing much valuable matter We do not always agree with the author, but on the whole his account of the part played by various drugs in such conditions as pyorrhœa, pulpitis, and neuralgia is sound He refers to two preparations of his own—of one of them the exact formula is not given Some enthusiasm may be allowed to an inventor, but Prof Buckley praises its efficacy in terms that might have been left to others Those who allow for the author's prejudices, and skip the padding, will find in this book some useful accounts of the part played by drugs in the treatment of various dental conditions

INTRODUCTION TO EXPERIMENTAL EMBRYOLOGY.

By G R DE BEER, Fellow of Merton and Jenkinson Memorial Lecturer Oxford Oxford · The Clarendon Press 1926 Pp 148 7*s* 6*d*

WE welcome this book Records of experiments, replete with a variety of turgid detail, are scattered throughout the extensive scientific literature of the world, and the bearings of any individual experiment or set of experiments on questions at issue are not always apparent except to those who are working in the same field Others whose activities are affected in greater or less degree by the results obtained or suggested, frequently have not the time to follow out the ramifications of experiments, and will be grateful for the short accounts of results given in Dr de Beer's little book It excludes experimental work on the sexual glands and characteristics, and does not profess to give more than enough to throw a little light, in the words of the author, on the essentials of the problems of animal development Connexion between the various subjects is well preserved.

Short chapters on regeneration and tissue culture are included, and a list of the numerous papers and books utilised completes a useful little work

TELEOLOGY

Man not a Machine By EUGENIO RIGNANO With a preface by HANS DRIESCH London: Kegan Paul, Trench, Trubner and Co 1926. Pp 77 2*s* 6*d*

Prof Henry Fairfield Osborn says in a recent book, " If I have made a single contribution to biology which I feel confident is permanent, it is the profession *that living Nature is purposive* " There was a time when a man might have been burnt at the Darwinian stake for less, all that has happened to Prof Osborn has been to be made a foreign member of the Royal Society And it is significant that almost all the serious attempts which are made nowadays to explain life and evolution come to similar conclusions Allowing that heretics are always likely to be more vocal than the orthodox, it is surprising how few books are written to support Jacques Loeb in his view that life is a chemico-physical system, though there are, of course, a great number of papers in biological periodicals which make that implicit assumption. The present slender volume by the editor of "Scientia," where a symposium on vitalism and mechanism has smouldered for a long time, makes no pretence to be a formal treatise; it is more like a manual of devotion containing a brief statement of the faith that the fundamental characteristic common to all vital phenomena is that they present a purposive, teleological, or finalistic aspect It will strengthen those who think like the author, and will give them much food for thought and some fresh points of view We would commend it especially to pathologists, who live in a peculiarly illustrative atmosphere, which indeed Prof Rignano realises, though when he notices the specificity of antitoxins (p 38) he makes a bad mistake in his facts by an extra artery—produced symptoms attributable to the kidney and to hydronephrosis

Speaking of renal tuberculosis Mr Jeans laid emphasis on its insidious onset, quoting cases in which it followed post-parturient pyelitis, gonorrhœa, and the persistence of a bullet in or near the kidney In these cases the patients had owed their lives to the fact that their doctors had suspected tubercle in time to save them by nephrectomy An important cystoscopic sign diagnostic of early tuberculosis of one kidney was the rebound, at an acute angle, of the colouring fluid used as an indicator This proved a thickening of the lower edge of the ureteric outlet, and was very valuable as being the earliest sign which could be detected Early diagnosis by cystoscopy was very desirable, all his private patients who had had nephrectomy were well, but he had to think hard to recall hospital patients who were still alive for they came for treatment when the condition was already bilateral

In prostatectomy, said Mr Jeans he favoured the so-called blind operation, as against the long incision at sight with the patient in the Trendelenburg position Men with high blood pressure did not stand the Trendelenburg position well, the operation took 20 minutes longer, and complications were therefore commoner

Prof JOHN HAY and Dr WALLACE JONES submitted a paper on

Trauma Responsible for Auricular Fibrillation

from the medico-legal standpoint The trend of their communication was to show that trauma or physical strain was sometimes the exciting factor in the production of auricular fibrillation The disability might occur as the result of a man's employment, and in such cases the employers would be liable They reported five cases, in one of which fibrillation was caused by a severe electric shock A man sitting on an electric crane accidentally placed his forehead against the live terminals of the crane, receiving 250 volts of direct current, before the accident he had been perfectly healthy but after it the auricles continued to fibrillate until the fibrillation was broken by quinidine In the other four cases three of the patients were men in whom ordinary clinical examination had not revealed any cardiac disease or damage and who had not had any subjective manifestation of cardiac inadequacy before the onset of fibrillation In all three fibrillation occurred as the result of sudden definite physical effort In the fifth case the heart had not been sound, there had been evidence of slight aortic regurgitation, and the electrocardiogram had shown a right bundle lesion Up to the time of the accident, however, this patient had carried on comfortably with his ordinary occupation Then when lifting a heavy weight on to a roof he had suddenly "felt something give in his chest" Fibrillation had started at that time and had persisted, and the patient had been unable to resume his occupation The medico-legal significance of these facts was of considerable practical importance

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ACTION AGAINST A DENTIST—At Liverpool Assizes on Feb 7th damages were claimed against a dental surgeon of Chorley for personal injuries alleged to have been caused to the plaintiff, a 13 year-old girl, when she was 8 years old, by his assistant For the plaintiff it was stated that in May, 1922, the girl had some teeth taken out by the dentist's assistant so badly and roughly that her face swelled and she had to be treated daily for seven or eight weeks Ultimately she was taken into Chorley Hospital, where a piece of decayed bone, which had loosened from the jaw, was removed Later several operations were performed at Pendlebury Hospital at Manchester The girl's face was now lop-sided, and she bore permanent scars from the operations It was alleged that when the teeth were extracted the plaintiff's jaw splintered, that it became septic, and that this caused her to suffer from necrosis of the jaw Dr Rigby, of Chorley, stated that when he saw the girl four months after the extraction there was nothing to lead him to an opinion that the teeth had not been properly extracted Evidence to somewhat similar effect was given by Mr Gilbert Warburton, senior surgeon at Pendlebury Hospital Mr Justice Wright entered judgment for the defendant

Reviews and Notices of Books.

SURGERY A HUNDRED YEARS AGO

Extracts from the Diary of Dr C B Tilanus, afterwards Professor of Surgery at the University of Amsterdam Edited by Prof H T DEELMAN, Professor of Pathology at the University of Groningen Translated from the Dutch by JOSEPH BLES London Geoffrey Bles Pp 156 6s

THE origin of this diary was a tour made in 1818 by C B Tilanus and two friends, J C Broers and P J de Fremery, who had all three just taken their medical degree at the University of Utrecht and had decided to visit the various clinics in Belgium, France, and Germany before settling down They must have employed their time well, for in after life we find them as professors at the Universities of Amsterdam, Leyden, and Utrecht respectively A sketch of their careers is given in the introduction to this book by Dr Delprat of Amsterdam They first visited the hospital at Louvain, where Tilanus notes that, "they use here *acetus morphii* even up to 4 gram (60–62 grains) but they do not appear to have as yet obtained any satisfactory results from it It was prescribed to-day in small doses in a case of persistent vomiting" It looks as though there were some error in either the diary itself, the transcription, or the translation, for if the maximum dose of morphia acetate—presuming that acetus does mean acetate—was really "even up to 4 gram" we do not wonder that the results were not satisfactory From Louvain the three young doctors went to Paris, where for some six months they studied in the clinics of Dupuytren, Boyer, and Larrey, also noting the practice of other surgeons The operations, although brilliantly performed, generally ended in death from sepsis What strikes a modern observer even more than the dexterity of the surgeon is the heroic endurance of the patients An account is given of the extirpation of most of the lower jaw concerning which Tilanus remarks, "the operation was difficult and took a considerable time", the patient died on the nineteenth day after the operation From Paris they went on to Germany, where in Heidelberg they met Chelius and Nagele, and at Cassel they were shown over the museum by Prof Matsko, to whom they gave a tip of two thalers for his trouble, which, Tilanus remarks, "his Excellency did not refuse" At Halle, with which town the diary ends, they interviewed Sprengel and Meckel, the former told them that his chief interest was gardening The diary is well worth reading as a simple but intelligent account of interesting people and events.

The medical profession owes a debt of gratitude to Mr J L Tilanus for having placed his father's diary at the disposition of Prof Deelman and to Prof Deelman for having made an excellent little book out of the diary

PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE

Fifth edition By J J R MACLEOD, M B., LL D, D Sc, F R S, Professor of Physiology in the University of Toronto, Canada, formerly Professor of Physiology in the Western Reserve University, Cleveland, Ohio London. Henry Kimpton 1926 Pp 1054 42s

THE appearance of the fifth edition of this well-known text-book will be welcomed The general character of the book remains unchanged, but some of the sections have been brought fully up to date Thus the portion dealing with the physiology of the neuromuscular system has been expanded and rewritten by Dr A C Redfield A section on the physiology of the special senses has been added by Dr J M D Olmsted, and many new points have been included on the physiological and chemical aspects of blood, respiration, ductless glands, and the

THE LANCET.

LONDON SATURDAY, FEBRUARY 19, 1927

HUNTER AND LISTER

Sir Berkeley Moynihan's public career as resident of the Royal College of Surgeons of ngland may be said to have been inaugurated when he delivered the Hunterian Oration on Monday ast, and the date being the 199th anniversary of Hunter's birth, falling in the centenary anniversary f the birth of Lister, a comparison of the ideals and erformances of these two outstanding figures made splendid subject for a Hunterian Oration, and ne to which the President did eloquent justice Hunter and Lister are international surgeons who vorked world revolutions, the first by establishing he foundation of medical practice to be the study of hysiology, and the second by revealing, with the ssistance of an infinitely larger range of material quipment and recorded knowledge, the principles of sepsis that dictate the whole of medical procedure o-day, alike for the prevention, alleviation, and ure of disease In a fascinating address the President was able to show the existence of a arallelism between the two men which is remarkable, ven though it may be largely due to the acute and everential appreciation of Lister for the magnificent onceptions and fundamental performances of his ore-runner

The Hunterian Orator, in estimating the measure of the debt of the world to Lister and Hunter, compared the ideals of medicine, as established in the minds of the leaders of to-day, to those of enlightened soldiers for the cessation of war He enumerated the triumphs of operative surgery made possible by Lister, and longed for and sometimes foreshadowed by Hunter, thus introducing the apparent paradox that the direct developments of Hunter's researches and of Lister's fruitful leadership have been a vast multiplication in the range of operative surgery, which may appear to be rather an increase of war But those who are able to take a large view of the situation can see that the real objective is the ending of war For what is the war, as conducted by medicine, directed against? Against the pain, the disease, and the death of the human race Thousands of operations are performed to-day which could never have been attempted save for the wide wisdom and the intensive powers of research possessed by the two great leaders, but while those operations existed only in the imagination of Hunter and his school the victims descended to death through the valley of pain and disease—quickly or slowly they descended, without hope of escape and little hope of respite The war that is being conducted by modern medicine even though, in the operating theatre, it bears the closest resemblances to military performances, is a war that aims at and frequently succeeds in bringing peace Further, it is an extraordinarily hopeful form of war in that the old methods are ever ready to change and to submit to new discipline, as the range of knowledge is increased and collated when gathered from such resourceful allies as chemistry, physics, and physiology, with its biological implications The living progress of medicine is the glory of Hunter and Lister They are not to be praised as the inventors of any particular manœuvre or the discoverers of any valuable technique, but as the men who opened up to medicine a vista of victories, while providing opportunity for the wisdom of the world to play a part in its own salvation In the address delivered by Prof J M T Finney before the Hunterian Society we have eloquent testimony to the way in which Hunter's teaching permeated the culture of early America, the doctrines of Lister exercised a similar force throughout the world

The debt of humanity is equally divided between Hunter the great philosopher and Lister the great performer, a differentiation which is not meant to suggest that the leader in the eighteenth century was other than a remarkable technician, or that the leader in the nineteenth century was not a profoundly deep thinker As a matter of fact, which is well brought out in the latest Hunterian Oration, the methods of approach to the great problems of disease, as they unrolled themselves before the two men, appear wonderfully similar, and Sir Berkeley Moynihan indicates a suggestive similarity in their lives Each underwent a long and arduous apprenticeship—Hunter in the private medical school of his elder brother, and Lister in the wards and lecture rooms of Edinburgh and Glasgow Each, with much that was identical in their labours, strove to found boundless theories on a basis of exact knowledge, firmly laid and truly tested In the case of Hunter the immediate aim was mainly to acquire a knowledge of structure in relation to biological processes, while in the case of Lister comprehension of the processes of inflammation in relation to the manifestations of disease formed the first main objective of study And when the large results of their researches begin to appear each is in young middle age, but with a life time's record accounted for Hunter was 34 when he had placed to his credit by individual research the solution of biological problems whose existence had hardly been realised, and Lister was 33 years of age when he arrived in Glasgow, with results that can never be exaggerated, having behind him such a mass of researches made during the past seven years as, said the Hunterian Orator, would almost suggest that he was seeking to fit himself to be an experimental physiologist or pathologist rather than a surgeon The intensive nature of their early training led up to their magnificent achievements, while their devotion to the highest ideals of science secured for them the enthusiastic adherence of their followers

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TESTS OF HEPATIC FUNCTION

The enormous importance of the liver in the internal economy of the body has led to perpetual research during centuries, and the strange but definite fact that there is no clear-cut clinical syndrome which can be directly attributed to its dysfunction, as uræmia or steatorrhœa and glycosuria can be attributed to renal or pancreatic deficiencies, has in no way diminished our interest in this organ For however elusive the signs and symptoms of hepatic deficiency may be, it has long been clearly recognised that gross destruction of liver tissue by progressive disease, or a generalised poisoning of the hepatic cells make the prognosis very grave, especially in cases where operative treatment or the administration of such toxic drugs as chloroform or novarsenobenzol is contemplated

Practical Physics

By T G Bedford M A , F Inst P , Demonstrator of Experimental Physics in the Cavendish Laboratory, Cambridge, and Secretary of the Oxford and Cambridge Schools Examination Board London Longmans, Green and Co , Ltd 1926 Pp 425 10*s* 6*d*

The scope of the intermediate teaching in Practical Physics at Cambridge can be inferred from this book A good selection of experiments has been made, and they are described in a way which should make it possible for the student to go through his practical course with a minimum of personal attention from his teacher, though the author rightly holds that for the proper teaching of physics the supervision of a keen demonstrator is essential The ground covered is wide , in fact, were the student to go no further in the practical side of the subject he would still have a very fair all-round acquaintance with fundamentals, with the exception of subjects such as spectroscopy and radioactivity Within the range of the subjects covered we have nothing but praise for the adequate way in which the different sections are treated and the difficulties explained

Hygieia or Disease and Evolution

By Burton Peter Thom, M D New York E P Dutton and Co 1926 Pp 107 2*s* 6*d*

The influence of disease and especially parasitic disease, on evolution is a topic well worth serious discussion in the light of modern knowledge Dr Thom's treatment is hardly worthy of the subject It is vague, diffuse and scarcely correct in detail We find, for instance, on one page (p 80) the statements that the "dread shadow [of puerperal sepsis] that once threatened every pregnant woman has passed for ever ", that tuberculosis "has undoubtedly destroyed more lives than all other infectious diseases together ", that "all those who succumb to 'tuberculosis' are inherently of a type that are deficient in resistance" On p 98 we read of 'antityphoid serum—to prevent typhoid fever" He visualises (p 90) the time when progressive resistance will culminate in an absolute immunity of man to infections, forgetting that evolution and adaptation can occur in parasites as well as in hosts, and generally a good deal quicker in the former than in the latter However, it is to the good that the author is a cheery optimist with a sound belief in man's capacity to get round any difficulties which he meets

Self-Care for the Diabetic

For the Use of Diabetic Patients By J J Conybeare, *M C* , M D , F R C P Lond , Assistant Physician to Guy's Hospital London Humphrey Milford, Oxford University Press 1926 Pp 70 3*s* 6*d*

It is only within recent years that it has been realised that if a patient suffering from diabetes mellitus is to do well he must know as much as possible about the disease and of the principles which govern the dietetic treatment The recent books on the subject have been for the most part too technical for the average patient, and even the simplest of them has frightened and depressed more than one patient by references to diabetic coma and to cataract These pitfalls have been avoided by Dr Conybeare, who has written an excellent little book The chapters on the disease and on the principles of the diet are written in a simple manner and should be easily understood by the patient It would be an advantage if, in future editions, a graph was included of a blood-sugar curve after insulin as this would help the patient to understand its action more readily Some of the details given are hardly suitable for poor patients Thus absolute alcohol instead of methylated spirit is recommended for sterilising the insulin syringe and needles in order to avoid rusting, while the cheap alternative either of employing rustless needles or the addition of lysol to the methy spirit used for sterilising steel needles are not tioned Undue emphasis is laid on one specia paration of diabetic foods in the text and the such foods in the appendix might be extend include the diabetic foods which contain a goo of carbohydrate

The book should serve a useful purpose and relieve the medical attendant of some elem questions , on the other hand, if the pati intelligent it may also provoke further qu perhaps more difficult to answer

JOURNALS

Proceedings of the Optical Convention, 1 The Third Optical Convention met in Lon April, 1926 The previous conventions were 1905 and 1912, and the second and third m were thus separated by the war period in wh British optical industry made great advance. Proceedings form a valuable record of improv in theory and technique The papers deal wit side of optical science and several are, of cour cerned with the eye its mechanism and its A paper on some visual factors affecting the optical instruments deals with such matters acuity of vision and its relationship to the s of the eye threshold values and the effect of tion on vision and the optimum size of field in observational instruments —Two papers Aves and W Swann treat of the refractive d the eye from the statistical point of view papers the necessity of a greater uniformit conditions under which the tests are mad the method of recording data is emphasis Mechanism of Accommodation is the title o by E F Fincham, in which the anatomy of concerned is treated in detail and measur curvatures made by the author are recorde vidual differences were marked —A short Margaret Dobson deals with Heterophoria charting of this defect by Esdaile's myoph The problem of the anisometrope is dis some length from the optician's point of W B Barker —Conrad Beck contributes esting paper on Recent Advances in the Ma and Use of the Microscope The procee published at £3 and consist of two volumes c about 1000 pages They may be had Secretary of the Optical Convention 1 gardens, Exhibition-road London S W 7

Reports and Analytical Re

COW AND GATE MILK FOOD

ENGLISH FULL CREAM FOR INFANTS AND IN

(West Surrey Central Dairy Co , Ltd Gu Surrey)

This substance is stated on the label to be full cream milk, and to contain the equivale pints of milk " The contents of the tin 153 g (5 4 oz) and on analysis showed the composition :—

Moisture	2 81	per
Ash	6 16	,
Fat	25 75	,
Protein	26 43	,,
Lactose hydrate	38 02	,,
	99 20	,

This milk, which is of the "drum-dried is a good specimen of pure unadulterated milk, containing no added cane sugar, mil preservatives The fat is well up to the the moisture somewhat lower The clai tin contains the equivalent of two pints fully substantiated by the analysis It with warm water, and is quite free fro or greasy flavour behalf of the colliery company, has been 11 days in the witness-box, and his evidence, it seems, is even now not yet concluded In these circumstances it is not surprising that the judge does not desire to hear several additional experts whose evidence will travel over the same ground, if he is to limit the witnesses for the plaintiffs, he must also limit those for the defendants

How far is it likely that the judge s ruling would be applied to litigation in which a medical practitioner is personally concerned as plaintiff or defendant? Here two points may be borne in mind In the first place a Chancery judge sits without a jury Partnership disputes between doctors, in which professional conduct might be an issue, might conceivably find their way into a Court of Chancery, but the normal case in which negligence or malpraxis is alleged will usually be tried before a jury When there is a jury, it is for the jury—not the judge—to decide the facts If so, the jury—not the judge—is entitled to say when sufficient evidence has been heard upon a particular point The attitude of a juryman is sometimes unfathomable He may discount the evidence of all the experts impartially, or he may reckon its weight by the relative numbers of the experts rather than by their relative qualifications, he may even think, if the case is tried in the country, that his own local doctor is a better man to follow than some stranger from London But he is not to be told that he must only hear two experts and not three, or three and not four In the second place, it must be remembered that one or two experts cannot always cover the whole of the ground or deal with every technical aspect. The Swansea Corporation, protesting against the ruling under discussion urged that it might wish to call the evidence of experts in the separate subjects of mining, water supply, and geology The judge answered that he would not limit the number of witnesses if satisfied that "by reason of special circumstances' justice could not be done without hearing other experts; and, in any case, additional witnesses could be called even though experts, to speak to matters which they had personally seen The argument of the Swansea Corporation would often apply where a case turns upon medical evidence Recently, for instance, where a doctor was charged with performing an illegal operation, it was indispensable for the defence to adduce the evidence of expert pathologists, gynæcologists and anæsthetists It would have been intolerable if the defendant had been restricted to a maximum of two experts

There are practical limitations upon the number of witnesses already Learned counsel, who advise preliminarily what evidence is desirable and who are responsible subsequently for the calling of the evidence, know better than to weary with vain repetitions a tribunal which has already appreciated a point of fact or opinion The expert upon whose authority the litigant most confidently relies is generally the first to be placed in the witness-box, when his evidence is ended a sequence of lesser experts will add but little The taxing-master, too, contributes to the limitation of numbers, since it is known that he may disallow the costs of superfluous evidence But there are times when the risk of repetition must be run and when costs must be incurred without regard to their recovery The defence of his professional reputation is a cause in which a practitioner must employ every resource We cannot believe that judges will ever obstruct his right to call into the witness box every witness who may be deemed necessary for that purpose

Annotations.

"Ne quid nimis"

TREATMENT OF STOKES-ADAMS ATTACKS

FEW clinical incidents are so dramatic as a Stokes-Adams seizure. The suddenness of the onset the urgency of the symptoms, and the possibility of a fatal termination together create on the observer an impression never likely to be forgotten The unexpectedness of the calamity is not infrequently intensified by the fact that before the first seizure the patient has had little cause to suspect the existence of any serious derangement of his circulatory mechanism, and may in fact have led an active life Even physical examination between attacks sometimes reveals but little evidence of morbid changes in the heart. for though in most cases some grade of heart-block is present, instances do occur when even this is lacking. The mental anguish of these patients is often pitiful, and when their seizures follow one another in rapid succession they live in constant dread of impending death, hardly daring to move a muscle for fear of precipitating the next, and possibly the last attack. As in all paroxysmal conditions treatment resolves itself into abortive and preventive measures The latter are the more important, for in the great majority of cases individual attacks are of short duration Ventricular asystole implies not only that the normal impulses from the auricle are failing to reach the ventricle but also that the lower centres in the heart have not set up an independent rhythm. It is not surprising therefore that Stokes-Adams seizures should most frequently occur during the unstable phase when partial heart-block is tending to become complete or when complete block is reverting to normal rhythm The increased incidence of attacks during such transition periods is well illustrated by a case recorded by Parkinson and Bain in our columns [1] in 1924 Failure of the auricular impulse to reach the ventricles may sometimes be due in part at least to an increase in vagal tone Under these circumstances atropine may relieve the condition, but in the treatment of the Stokes-Adams syndrome the therapeutic effect of this drug is as a rule disappointing When, on the other hand, the block is due not to vagal influence but to some structural lesion of the bundle or to damage caused by some toxic agent the rational line of treatment is to endeavour to increase the excitability of the muscle of the ventricle itself. This may sometimes be achieved by subcutaneous injections of adrenalin (5 to 10 minims of the 1 in 1000 solution) Complete heart-block is sometimes abolished by adrenalin whilst in other cases although the block remains unaltered ventricular standstill is prevented S A. Levine [2] has recently reported a remarkable case in which on two occasions Stokes-Adams attacks lasted for several minutes and ventricular activity was re-established by injecting adrenalin directly into the heart. The most recent therapeutic agent employed in this condition is barium chloride, a drug known to increase the excitability of the ventricle under experimental conditions in animals, and A E Cohn and Levine have shown that clinically it sometimes appears to prevent recurrence of the syncopal attacks and recommend a dose of 30 mg. four times a day by mouth. Unfortunately neither adrenalin nor barium appears to be efficacious in all cases, though in the present state of our knowledge they offer the best prospect of preventing the attacks.

INTELLIGENCE OF THE NEGRO

THE problem of the negro is a hardy perennial in the United States and it was inevitable in a country where so much work has been done with intelligence tests that their aid should be invoked in order to determine whether his assumed racial inferiority is

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[1] THE LANCET, 1924, ii 311

[2] Boston Med and Surg Jour, 1926, cxcv., 1147

Interest in the liver has been further stimulated by the more exact classification of cases of jaundice which are now very generally recognised as falling into three classes (1) those in which there is gross mechanical obstruction to the biliary channels, (2) those in which the liver cells themselves are so disordered that the proper excretion of bilirubin from the blood cannot be accomplished, and (3) those in which the jaundice is the consequence of excessive hæmolysis, the blood being saturated with bilirubin of extra-hepatic origin Intent on the elucidation of such problems, laboratory workers have long sought for chemical tests which may demonstrate pathological changes in the liver cells, and hence any defect in the general physiological capacity of the liver Such tests have been suggested in great numbers, and it must be recorded that they have usually had but a transitory popularity Almost as fast as they are devised they fall into disuse, and it should be placed to the high credit of medical research that improved and novel tests are investigated perpetually by energetic workers who refuse to allow disappointment to convert them to pessimism

In our present issue we print the results of investigations into two liver tests which, if not entirely novel, have not perhaps received the attention in this country which they appear to deserve Essentially there is no great difference between the two, for in each a simple sugar is administered by mouth and the test consists in ascertaining the change, if any, which occurs in the concentration of sugar in the blood at subsequent half-hourly intervals In the test described by Dr D T DAVIES galactose is employed This is given in a dose of 40 g dissolved in 400 c cm of water, samples of venous blood being collected at half-hourly intervals for several hours afterwards In addition to these blood samples, the urine is also collected, though the conclusion of BAUER, one of the German observers, that galactosuria was the one positive sign of abnormal liver function is not fully borne out by the latest investigations The blood-sugar curve has, in Dr DAVIES's hands, proved more useful, no great rise in this curve being observed save in those cases where the hepatic cells had been grossly damaged Thus normal persons, patients with gross obstructive jaundice, and subjects with pernicious anæmia and acholuric jaundice, alike showed little or no rise in the blood-sugar after the ingestion of galactose, whilst those with catarrhal or toxic jaundice, cases of malignant disease with secondary deposits in the liver, and cases of cirrhosis following syphilis or chronic alcoholism gave very definite increases in the blood-sugar after galactose owing to the serious derangement of the glycogenic function of the liver Mr GORDON KING has employed lævulose, of which sugar he gives 45 g in 100 c cm of water to the fasting patient Subsequent blood analyses again were used to determine the curve of blood-sugar In 53 cases investigated it was found that only those subjects in whom gross damage to the liver cells was present showed a marked and continued rise in the concentration of sugar in the blood It is clearly too soon to discuss the ultimate value of these tests, though any attempt to give a firmer outline to the vague country of "liver disorders" is to be commended The transitory nature of our confidence in the virtue of certain other tests has already been alluded to, and is exemplified in the interesting article by Dr ERNEST BULMER who, in the current number of the *Quarterly Journal of Medicine*, records the unsatisfactory results which he has obtained during his investigation of the bromsulphalein test In this test, devised by ROSENTHAL, a dye, bromsulphalein, is injected into a vein, and the amount of such dye remaining in the blood serum half an hour later is estimated by a relatively simple colorimetric test Earlier investigations appeared to promise that only in cases of defective liver function would there be marked retention of the dye, and indeed that the degree of retention would give an accurate indication of the extent of hepatic deficiency From Dr BULMER's results it would appear that such hopes were groundless, and that there is too gross a margin of error to leave much practical utility in the test Somewhat similar disappointment has been experienced in the case of the test associated with the name of Prof H van den BERGH The hope that this test would supply a ready method of differentiating the various types of jaundice has not been fulfilled, though, as Dr DAVIES points out in his article to day, it has proved of value in estimating the degree of bilirubinæmia

The critical clinician, when reading through the protocols of inquiries such as those to which we here allude, is apt to point out how little they add to the information which is already obtainable by careful clinical examination The degree of jaundice can be as delicately estimated by the human eyes as by almost any laboratory test, the size of the liver and its consistency give information as precious as any that the biochemist can bring forward, and it is indeed to the clinician that the laboratory worker turns when seeking the interpretation of the subtleties before him But to recognise these facts is not to disparage the chemists' efforts, for most important results have already been obtained of which the more precise classification of jaundice is an example, and if the laboratory now settles the diagnosis in but one case in a hundred, that one is to the good and is the probable forerunner of further diagnostic success

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THE LIMITATION OF EXPERT EVIDENCE

IN the course of a case which has occupied his judicial attention for several weeks, Mr Justice TOMLIN has ruled that he will not hear more than two expert witnesses on either side The decision, discussed by a legal correspondent upon another page, has interest for the medical profession which furnishes so great a proportion of the expert evidence given in courts of law It may cause some apprehension too The medical practitioner may find himself involved from time to time in litigation in which professional negligence or malpraxis is alleged, will he not be prejudiced if the court curtails his right to summon all the expert witnesses he may consider necessary? Even in a civil action, still more in criminal proceedings, any such curtailment might amount to a denial of justice We can only assume that no general interference of this nature is intended, indeed the circumstances in which the learned judge delivered his ruling appear to have been exceptional A colliery company had asked the Court of Chancery to restrain the Swansea Corporation from filling a certain reservoir with water on the ground that, if the corporation carried out its purpose, the mine workings would be flooded The case had occupied 26 days when Mr Justice TOMLIN made his pronouncement, it has since lasted a further fortnight, as no doubt he foresaw, and it is not yet ended He has adjourned the action for a month in the hope of making progress with the other cases in his list which were promising to be indefinitely postponed Already expenses have been heavy, the existing costs are estimated at £40,000 One expert witness, called on and not a complete one. It must be remembered also that Walker, Teale, and Embleton worked with animals with an intact bladder and urethra, and that their contention that the mechanism of spread was by the lymphatics only applied to cases of ascending infection unassociated with obstruction. When obstruction is present in the lower urinary passages it is more likely that the infecting organisms ascend along the column of stagnant urine lying in the ureter.

SANITATION OF THE PORT OF LONDON

Dr. W. M. Willoughby, in his report for 1925 to the Port of London Sanitary Authority recently published, mentions that no case of plague, cholera, or typhus fever had to be dealt with, and that no plague-infected rat was found in the port. All vessels from abroad are visited by a medical officer; ships from "infected" or suspected ports are boarded and examined on arrival, and later, in dock, come under further scrutiny by a sanitary inspector. Ten deaths were notified, seven from pulmonary tuberculosis, and one each from small-pox, enteric fever, and measles. Three ships reported they had had a case of suspected plague on board during their voyage, but it is doubtful if any of these was really plague. Twenty-one ships reported outbreaks of small-pox since leaving their port of origin, and four cases were landed in London. In eight cases complaint seems to have been made in the stage of initial fever, but its significance was rarely, if ever, recognised. As soon as the disease appeared the crews were vaccinated, but much time would have been saved had the crews been kept continuously protected, so that these infections could not have occurred. A seaman from a ship was found at Stepney to have small-pox; his ship was examined and one of the crew, well vaccinated in infancy, was discovered to be recovering from a characteristic, though very slight, attack of small-pox. That case dated back three or four weeks, and the patient's brother and two others of the crew had been left behind at the last port suffering with "influenza"; on inquiry being made they were found to be in a small-pox hospital. The one slight missed case seems thus to have caused at least four others.

In the Port of London, when cases of infectious disease have occurred, cabins or compartments are now disinfected by sulphur fumigation followed by washing down with disinfectant, infected articles and textiles being disinfected by steam. To get rid of rats 40 ships were fumigated with sulphur (average of dead rats found, 62), and 12 with hydrocyanic acid (average of dead rats, 54). A paper reproduced in the report tells how thoroughly rat-proofing is being done at the New York Quarantine Station. The work there is based on the three following principles: (1) Rats want food and water, so these must be kept out of their reach; (2) they want shelter and nests, so there must be no harbourage for them and no rubbish left about to help in nesting; (3) they must be kept in the open by blocking up their runways. Skilfully used, these measures get rid of rats and are inexpensive; Dr. Willoughby thinks that if they are thoroughly carried out they will stop rat-borne plague and the need for frequent disinfestation. A total of 27,128 rats were caught and destroyed in the year—12,746 in the warehouses and 14,382 on ships in docks and river. Of those caught in warehouses ashore, 1929 (1338 black, 591 brown) were examined for plague, but all were free. The visits of medical inspection paid to ships totalled 15,156, and 200 ships were found defective. The principal complaint was of dirty quarters (1535), the most numerous after that being lighting (57), leaky decks (48), sanitary conveniences (45), and ventilation (44). But it was not only ships that were defective; nuisances were also found on shore premises, of which 924 were dirty, and 65 had unsatisfactory sanitary conveniences.

The inspection of imported food is a very important branch of the work of a port sanitary authority, especially of that of the Port of London, and in the year under review over 1400 tons of unsound food had to be condemned, including 109 tons of meat. Some 56,000 beef tongues were examined, and about 2 per cent. of these were found to be infected with actinomycosis. The quantities mentioned are sometimes considerable; the eye is caught by amounts such as 196 tons of dates and 534 tons of "sugar sweepings." The latter may not have contained much sugar, for it is mentioned that chocolate sweepings in another port were found to contain metals, woodwork, glass, and flinty materials. The transport and handling of meat is being carried out in a cleanly manner under the Public Health Regulations, 1924. Under the Public Health (Imported Food) Regulations, 1925, rendered fats are only allowed to be imported if certificated; if not certificated they are stopped unless a guarantee is given that they will be exported or used in some manufacturing process not connected with food. A 10-ton consignment of orange pulp in tins was seized, because the contents had fermented, had been resterilised—thus losing food value—and resealed, the result being that the juice now contained too much tin. Dried fruits are treated with sulphur in the port to kill larvæ and this prevents deterioration. No reference is made to the question of latrines about the docks, which last year's report said was having attention.

PHYSIOLOGICAL CURE FOR MUSCULAR CRAMP

Dr. G. W. Fitz[1] has recently described a simple form of treatment which he has used in two cases of muscular cramp. One of the patients was an active, strong man of 190 lb. weight. In early life he had had occasional cramp in the feet, and at about the age of 53 had sustained a moderate sacro-iliac strain; dental abscesses had also been present for an unknown length of time. The cramp seizures began when he was 55 years old. They usually came on at night during sleep, and involved the quadriceps and inner hamstring muscles of the lower limbs. He noticed that they were worse after fatigue from standing, and during the attack the agonising pain indicated that every nerve in the hard mass of muscle was pinched as in a vice. After 10 or 20 minutes the muscle became soft, and though a new contraction often started it was of shorter duration and stopped more rapidly under the influence of radiant heat from a fire. Relief from attacks was only obtained by the use of salicylate in full doses, and administration of this drug was continued over a period of two years. The patient's teeth were then extracted; some slight joint trouble was arrested, and with improved health the cramp stopped for two years, after which, however, it began again. On the theory that cramp is due to alkalosis, it occurred to Dr. Fitz that the seizures might be arrested by causing retention of carbon dioxide, and for this purpose he uses the following method. At the first indication of cramp the breath is held, and an empty rubber bag of 3 pints capacity is applied to the mouth; air is then expired into it as late and as slowly as possible. Inspiratory breaths are taken from the bag, but as this is not very large a little of the outside air is sucked into it at each inspiration to meet the deeper breathing which the deficient oxygenation causes. Dr. Fitz states that this procedure prevents oxygen-want, but does not hinder CO_2 accumulation; but the statement is certainly open to criticism since dilution of expired air with atmospheric air will obviously diminish the percentage of CO_2 as it increases the percentage of oxygen. The result of rebreathing from the bag is said to be that the cramp is at once aborted with only a few weak twinges to indicate how severe the attack might have been. Dr. Fitz considers that the condition in the patient he describes is analogous to the tetany or cramp-like effect produced by over-breathing, and he suggests that in his own case the cramp may arise from respiratory acceleration in sleep as the result, for instance, of excitement in dreams. As he points out, there are various conditions of tetany which suggest real, and, if so, of what degree The most recent of such inquiries to come to our notice is a survey of the children in the negro public schools of Atlanta Miss Virginia T Graham, psychologist to the U S Health Service, describes the methods and results, and was presumably responsible for the work Over 3000 children in five schools were the subject of experiment They were first of all tested by the Otis group intelligence scale, and those who made low or doubtful scores were then given individual tests, for this purpose the Stanford-Binet scale was principally relied upon, but was supplemented by three practical tests, the well-known Healy construction A, and two others less known here, the Kohs block design test and the Lincoln hollow square The results of the group tests were compared with Otis's own norms for white children of 200 cities All such comparisons are, of course, subject to the criticism that the two races have not an identical social and educational environment Making all allowances, however, the results show that on the tests given the negro children, at all ages above the lowest, made averages lower than those of white children, and that the discrepancy at each age rises with the age, they also show that greater variability of performance is found among the whites than the negro, the negro group tending to hang more closely round the average, thus giving smaller possibility of superior capacity in individuals Judged qualitatively on the basis of the tests, the negroes exhibited a lack of sensory discrimination and an inability to criticise their own work and recognise failure in it In practical and rote work they showed more efficiency These results are in accord with those of previous investigators in this line of work, but with regard to the degree of discrepancy of the races there is still much disagreement The writer of the report makes no greater claim for the value of the results obtained than they will bear; she claims no infallibility for the tests, and she allows for the "distorting influence" of "attitudes and interests" It may be, however, that so far as the social and economic adequacy of the negro relative to the white is concerned, temperamental differences between the races are of more importance than the differences of intelligence which the tests are supposed to reveal Until tests are measures of the complete man and not merely of an undefined "intelligence" inferences and predictions of individual or racial adequacy must be made with caution

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[1] Boston Medical and Surgical Journal, Oct. 28th, 1926.

PATHS OF RENAL INFECTION.

THE mechanism of ascending infections of the kidneys has long been a subject of dispute There are three paths along which organisms from an infected bladder may pass to the kidney—by the blood stream, by the lymphatics surrounding the ureter, and by the urine Much experimental work has been done to decide which of these paths is the one taken by organisms in ascending infections of the kidney In the December number of the *British Journal of Experimental Pathology* are published the results of the experiments carried out by C H Kellaway, C J. L Brown, and F Eleanor Williams Their method of investigation was to introduce various organisms into the bladders of guinea-pigs after producing a partial obstruction of the urethra and tying the right ureter It was found that the usual result of this inoculation of the bladder was to produce an infection of the pelvis of the left kidney Similar results have, of course, been obtained in the past by other experimenters, and taken alone these experiments do not furnish information as to the path taken by the infecting organisms But whereas previous experimenters have regarded sterile blood cultures made at the autopsy as a proof that the infection could not have occurred via the blood stream, Kellaway, Brown and Williams show that such an assumption is unjustifiable In certain of their animals organisms could be grown from the blood during life although the blood cultures made at the autopsy proved negative, proving that blood cultures in the dead animal could not be relied upon to detect bacteriæmia during life

In another series of animals experiments made by Kenneth Walker, F H Teale, and Dennis Embleton on the ascent of organisms via the chain of lymphatics surrounding the ureter was repeated The above named investigators had found that, if a loopful of *Bacillus prodigiosus* was placed in the urethra of a guinea-pig, and the animal was killed 6 to 12 hours later, the same organisms could be recovered from the capsule of the kidneys, although the blood and the urine of the animal were sterile Kellaway, Brown, and Williams failed to obtain similar results except in one single instance They are not, therefore, inclined to support the view that infection via the lymphatic chain surrounding the ureter is of common occurrence But although their experiments showed that the possibility of the renal infection being blood-borne could not be put out of court by the fact that blood cultures made at the autopsy were sterile, they are not inclined to think that organisms travelled in the blood stream A blood-borne infection would not explain the fact that in the majority of their animals it was the left untied kidney that became infected, the right kidney, whose ureter had been ligatured, remaining free The mere tying of the ureter had apparently no effect in determining the side on which a blood-borne infection developed In four out of five experiments in which organisms were injected into the blood stream 24 hours after ligature of the right ureter the kidney on the tied side became infected If, however, two, three, or four days were allowed to elapse between the tying of the ureter and the injection into the blood stream of organisms no infection of the hydronephrotic kidney occurred

In the hope of obtaining more information as to the path taken by infecting organisms, another series of experiments were made with suspension of insoluble particles introduced into the bladder In five experiments in which the urethra was partially obstructed and a suspension of carmine introduced into the bladder, particles of carmine were invariably present in the pelvis of one or both kidneys after from two to three and a half hours When the sacral nerve roots were destroyed, so as to produce paresis of the bladder, the ascent of pigment was not so regular, but occurred in four out of eight animals killed two to four hours after injection In these experiments particles were invariably found within the lumen of the ureter and pelvis and never in the wall of the ureter or in the accompanying lymphatics These experiments, together with others carried out on cats and rabbits, prove that when the urethra is partially obstructed or the nervous mechanism of micturition disorganised by division of the sacral nerve roots, the introduction of pathogenic organisms of pigment granules into the bladder is followed within two to three hours by their ascent into the pelvis of the kidney In the opinion of the authors this ascent occurred too rapidly to be accounted for by a blood infection although, as previously stated, the fact that the blood cultures at the time of the autopsy were sterile could not be taken as definite proof that a bacteriæmia had not been present during life

Since they had failed to confirm the findings of Walker, Teale, and Embleton on the subject of an ascending spread via the lymphatics, they were led to the conclusion that the organisms and particles ascended along the lumen of the ureter These results are similar to those obtained in 1890 by J C F Guyon and J Albarran when working with dogs and rabbits in whom a complete retention had been produced They are also supported by the work of G E Brewer in 1911, who produced pyonephrosis by injecting organisms into the bladders of dogs with artificial retention The experiments of Kellaway and his colleagues, however differ from those mentioned above in that the bladder injections were made in the presence of a partial urethral obstruction

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[1] Public Health Reports of the United States Public Health Service, vol xli, No 49, Dec 3rd, 1926

At the Mothers Hospital in Clapton the post-partum morbidity appeared to be less in the venereal block than in the clean blocks This hospital was associated with hostels and pregnant patients known to have been infected were thus admitted some months before their confinement was due In a large proportion of these cases the gonococcus could not be found the usual secondary infection having supervened. Dr. Logan attributed the succession of normal puerperiums in these cases to early and thorough treatment. and Dr D Nabarro also commented on the extraordinary way in which copious vaginal discharges cleared up under hospital conditions The discussion raises the interesting question as to how far the systematic antenatal disinfection of the vaginal flora if it were practicable might reduce puerperal morbidity. Those patients who have been segregated in a modern V D hostel for weeks or months prior to admission have not only had their vaginal tracts continually disinfected. but also have had no chance of becoming infected by other organisms during coitus late in pregnancy. Many uneducated women still believe the old superstition that regular intercourse near term is beneficial, and will help them to have the much-desired easy confinement Another point which favours the hygienic condition of the inmates of a hostel is that they are accustomed to take several baths a week, an almost impossible practice for the poor-class married woman living in her own home. Hostel patients are also no doubt, given regular aperients and so another fertile source of pyrexia in the puerperium—*B coli* infection of bladder or kidney—is less likely to occur. Finally, these young women are under daily supervision and malpresentations of the child are more likely to be noticed and remedied before labour. thus avoiding the need for undue manipulation during labour.

SONNE BACILLUS DYSENTERY IN BRITAIN

FOLLOWING Dr. R Richard's account of an outbreak of bacillary dysentery in children at Aberdeen [1] where, though most of the cases were due to Flexner bacillus four cases were caused by the Sonne bacillus Dr. F H A. Clayton now (p 391 of this issue) reports a case of Sonne dysentery in England. having a possible contact relation to the Aberdeen epidemic In one of the Aberdeen Sonne cases the patient suffered from an arthritis accompanying the dysentery, such toxic arthritis not having been hitherto recorded in association with this organism. After the dysentery epidemics of 1668–72 in England, Sydenham (1672) described arthritis following a definite clinical attack of dysentery This was forgotten but the dysentery epidemics of the late war made this toxic arthritis in Flexner and Shiga dysentery well known Dr. S H Clifford [2] has brought forward evidence to show that one type of arthritis deformans in children may be due to a past or present infection with Flexner bacillus which has not produced a recognisable clinical syndrome of dysentery These facts suggest that all cases of arthritis, at any age, of doubtful ætiology should be examined for infection by dysentery bacillus Dr. Richards noted that in dysentery the insertion of a finger in the rectum caused tenesmus with expulsion of blood and mucus whereas in intussusception the rectum is large and roomy and no tenesmus is evoked This is a clinical observation of some importance, for in this country acute dysentery in the child may easily be, at first regarded as intussusception The subject of digital rectal examination not unnaturally suggests sigmoidoscopy—for subacute cases Tropical practitioners have now learnt from experience that sigmoidoscopy is indispensable for the accurate diagnosis of all cases of so-called colitis The method has made it much easier than formerly to demonstrate the causal organism, by culture or microscope, in the mucus picked off an ulcer or inflamed patch of mucosa. Its routine use has shown, as Dr. Richards surmised that bacillary dysentery is not so rare among some populations as was generally believed. Thus K Saisawa and B Tanabe [3] in the examination of recruits in the Japanese Army in Tokyo. found that sigmoidoscopy gave more successful results than even fresh cultures from stools and many apparently healthy carriers of dysentery bacillus were detected by its aid Furthermore the sigmoidoscope revealed that the great majority of these were not healthy but. in fact. were very mild cases of dysentery with slight lesions in the colon—so mild and so slight that infection with dysentery bacillus had not been suspected.

THE PRINCESS MARY, F R C S

ON Feb 14th Princess Mary. Viscountess Lascelles, was admitted an honorary Fellow of the Royal College of Surgeons of England. being the first woman to receive this distinction. Wearing the robes of a Fellow she attended the Hunterian Oration delivered at the College by Sir Berkeley Moynihan. the President and published at the beginning of this issue of THE LANCET. In the evening the Hunterian Festival Dinner was held at the College After the toast of the Memory of John Hunter had been honoured in silence. Sir Cuthbert Wallace vice-president of the College proposed that of the Guests. To this Lord Riddell replied and passed appositely from some jocular words instigated by the menu. as to the ability of medical men to eat whatever they felt inclined. to a wise warning as to the depressing influence of the broadcasts in the press as to the harmfulness of many common forms of diet The toast of the President and Hunterian Orator was proposed by Viscount Lascelles who acknowledged the high appreciation of the Princess Mary of the honour conferred upon her by election to the Fellowship of the College He delivered a message to the President from the Princess signifying that her Royal Highness considered the diploma as setting a seal on work which she had attempted during the last six or seven years as the war had brought from her personal work in the alleviation of suffering.

THE Home Secretary has appointed Dr G. Roche Lynch to be Senior Official Analyst to the Home Office in succession to the late Mr John Webster. Dr. Lynch has since 1920 held the appointment of Junior Official Analyst to the Home Office.

WE offer congratulations to Dr. John Moore Swain of Long Clawson Melton Mowbray. who has recently celebrated his hundredth birthday Dr Swain became a licentiate of the Society of Apothecaries in 1849. and a Member of the Royal College of Surgeons in 1850

THE next social evening of the Royal Society of Medicine will be held on Monday. Feb 21st at 8 30 P.M Fellows and guests will be received in the Library by the President and Lady Berry. and at 9 30 P M Mr. Percy Flemming will give an illustrated address entitled Topographical and Medical Notes on Harley-street There will be an exhibition of prints and maps of the neighbourhood.

THE forthcoming revision of the International List of the Causes of Death discussed in our leading article last week will be undertaken by a conference called, as in former years by the French Government. So far there has not been universal agreement that the Health Section of the League of Nations should undertake the task of arranging conferences to deal with this question The League is however. attempting to collate recommendations from this and other countries alkalosis as their cause Amongst them is the loss of hydrochloric acid from the stomach in vomiting from pyloric stenosis or in gastric fistula, but in other conditions more detailed investigations have thrown some doubt on the close application of the theory J A Campbell[2] has recently suggested that all forms of tetany are primarily due to oxygen-want, and alkalosis—whether due to overdosing with alkalis or to any other cause—will act by hindering the blood from delivering up its load of oxygen, as Barcroft and his colleagues originally pointed out Taking these suggestions together with Dr Fitz's observations, it would seem that an even better way of treating cramp might be the simultaneous administration of oxygen and carbon dioxide, though this would not be nearly so simple as the method he has devised

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[1] THE LANCET Feb 12th p 343.

[2] American Journal of Diseases of Children, 1926, vol xxxii No 1

[3] Philippine Jour of Science, 1926, vol xxx., No 3

TONSILLECTOMY AND ACUTE RHEUMATISM.

THERE is close agreement between all observers as to the high frequency of tonsillar disease in rheumatic children, percentages round about 80 being usually quoted On the other hand, there is wide disagreement as to the value of tonsillectomy in preventing rheumatic manifestations In the report[3] of the special subcommittee on rheumatic heart disease in children appointed by the British Medical Association Dr Reginald Miller pointed out some of the fallacies in the various methods previously employed in investigating this problem, giving the results of his own experience in the study of rheumatism as it occurred in children whose tonsils had been removed He showed that whereas arthritis had been present in 38 per cent of his cases before tonsillectomy recurrence of acute joint inflammation occurred in only one of those showing acute rheumatism after operation Closely similar results are reported in a recent paper by Dr O Holsti on the course of acute rheumatic arthritis after treatment of inflammatory processes in the upper air-passages[4] These results are based on a study of 35 cases of acute and relapsing rheumatic arthritis seen at the Medical Clinic of the University of Helsingfors There were 13 males and 22 females, and their ages varied from 10 to 60 years Typical polyarticular acute attacks occurred in 11 cases for the first time just prior to their admission to hospital, while in the remaining cases there had been two or more earlier typical attacks On admission to hospital each patient received salicylates in large doses with local applications to the joints, and the acute stages usually passed quickly Treatment of infections of the nasopharynx and mouth was generally not begun until the acute attack had completely subsided, but exceptions were made in certain cases with protracted convalescence and very marked inflammatory processes in the upper air-passages No harmful effect was seen in any case, even when the treatment was begun early (Dr Miller made the same observation with regard to the harmless nature of tonsillectomy in his cases) The measures taken consisted of tonsillectomy, operations on infected nasal sinuses and careful attention by a dentist to all inflammatory processes in the mouth The cases were then observed over a period of four and a half years and in no case did a true relapse occur in a purely rheumatic patient who had reached the age of puberty One man of 45 with heart disease died after gangrene of the leg occurred, necessitating amputation, and one boy of 10 succumbed to pneumonia and acute carditis eight months after tonsillectomy In two other cases relapses occurred, but one was complicated by the presence of gonorrhœa and the other was a case of hæmophilia Some of the remaining patients had minor manifestations of rheumatism from time to time, which Dr Holsti regards as abortive attacks, but over 50 per cent remained completely healthy This series of cases is undoubtedly small and the type of disease must have varied considerably with such a wide disproportion in the ages—namely, 10 to 60. Nevertheless the treatment of inflammatory processes in the upper air-passages does appear to have been beneficial in preventing the recurrence of the rheumatic infection in the joints On the other hand, Dr Miller had shown in his paper that the occurrence, or recurrence, of chorea is not controlled by tonsillectomy Such opposite results suggest that the disagreement upon the value of tonsillectomy and other measures in preventing rheumatic manifestations is not likely to disappear unless each manifestation is dealt with separately, since the total clinical picture resulting from rheumatic infection is too complex to permit of simple analysis

ENDEMIC TYPHUS IN SOUTH-EASTERN UNITED STATES

WE recently[1] drew attention to a report by Dr William Fletcher and Dr J E Lesslar on a disease in the Federated Malay States resembling typhus in clinical symptoms and Weil-Felix reaction, but differing from it in its low infectivity and the absence of any evidence of its being transmitted by lice A somewhat similar disease has since been described as prevalent in the South Eastern United States by Dr Kenneth F Maxey,[2] under the title of endemic typhus or Brill's disease The cases gave a positive Weil-Felix reaction and were clinically indistinguishable from typhus fever except in regard to their relative mildness and low fatality rate, which are characteristic of that form of endemic typhus known in the United States as Brill's disease Apart from a group of cases in the State of Alabama and in Savannah and Galveston, on which his report is based, Dr Maxey has collected evidence of the existence of mild typhus corresponding to the description of Brill's disease in other cities and towns in North and South Carolina, Georgia, and Florida The epidemiology of the disease seemed to differ considerably from that of typhus in the eastern hemisphere In the first place it reached its maximum in the summer and autumn, in contrast with the high winter and spring incidence of typhus in the Old World Secondly, as in the Federated Malay States, there was no evidence that infection was transmitted by the louse, which is the usual carrier of ordinary typhus It did not select the poor and uncleanly, but occurred among all classes, and no cases were found in prisons or asylums Dr Maxey suggests that the source of infection in this disease is elsewhere than in man, and is to be found in rodents, probably rats or mice from which it is occasionally transmitted to man This hypothesis is compatible with the following epidemiological characteristics (1) the uneven focal distribution of the disease, (2) its sporadic occurrence; (3) its apparent lack of communicability from an infected person, (4) its association with the place of business rather than with the home—particularly with those premises in which foodstuffs are handled or stored; (5) the recurrence of cases on the same premises after considerable intervals of time, and (6) its seasonal incidence.

THE PUERPERIUM AFTER GONORRHŒAL INFECTION

THE extra attention given in maternity hospitals to pregnant women known to have been infected by the gonococcus has evidently led to such good results that it is tempting to try to draw a moral of more universal application At the Cambridge meeting of the Medical Society for the Study of Venereal Diseases, reported in our last week's issue, Colonel L W Harrison expressed his conviction that the gonococcus was responsible for much puerperal septicæmia In his experience, however, the cases in the venereal wards of a maternity hospital ran a more level temperature than those in the other wards Dr D C Logan confirmed this impression

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[2] THE LANCET, 1926, i, 72

[3] Supplement to Brit Med Jour, July 3rd, 1926

[4] Act Med Scand, vol lxv, fasc. iii–iv, Jan 26th

[1] THE LANCET, Jan 8th p 36

[2] Public Health Reports, Dec 24th, 1926, p 2927

Special Articles.

MATERNITY AND CHILD WELFARE

CONFERENCE AT NEWCASTLE-ON-TYNE

A CONFERENCE was held on Feb 10th, under the auspices of the Maternity and Child Welfare Group of the Society of Medical Officers of Health, Dame JANET CAMPBELL presiding. All parts of Great Britain sent representatives who were entertained by the Lord Mayor of Newcastle at a reception on Feb 9th and at luncheon on Feb. 10th. On Feb 11th maternity and child welfare centres in Newcastle and Durham County were visited, also various voluntary institutions having the care of children.

In reply to the civic welcome Dame Campbell said that this was the first conference of its kind held in the North of England. It was a purely medical conference. When they had had meetings in London they met not *only* medical colleagues but lay colleagues interested in maternity and child welfare. That had its advantages, but it tended rather to hamper discussion of medical topics, so that a meeting at which work could be discussed from the medical aspect only was welcome.

Dr A F G SPINKS opened the conference by reading a paper on the

Development and Future of Maternity and Child Welfare

He said that the development of the maternity and child welfare movement was probably the most convincing of the many signs of an awakening public interest in public health. It was almost unheard of 25 years ago, and yet though it had been started with all the financial and other disabilities inseparable from voluntary activities it had nevertheless gripped the imagination from the outset and had made for itself a safe and permanent abiding place in national affairs. To-day nearly every district—both urban and rural—had its maternity and child welfare scheme, and in England alone there were more than 2000 centres from most of which came reports of rapidly increasing attendances. At the Newcastle centres the attendances had increased from 4000 in 1918 to 50,000 in 1926. Dr Spinks traced the development of child welfare work from a centre established in Ghent in 1901. In 1924–25 the total expenditure on maternity and child welfare work in this country amounted to about 1½ million pounds, which represented less than one halfpenny a pound in a national budget of over 800 million pounds—not a large sum to spend on so important an object. Preventable ill-health cost the nation many times that amount annually. Those concerned with promoting maternity and child welfare had two main objects in view: first to maintain in good health those who were already healthy—practically every child was healthy at birth—and secondly to improve and increase national efficiency. Thus in principle the movement was essentially preventive and, since it dealt with the health of the public at the outset of life, it must be the basis of public health. Experience had proved that a great deal of the suffering prevalent among young children was due not so much to want of money as to want of knowledge, and unfortunately this want of knowledge prevailed on a vitally important subject from the child's point of view, that was its proper food. At the present time the bottle-feeding of infants was rampant, and unless the craze was checked England would become a bottle fed nation. There was nothing but teaching at *maternity* and child welfare centres to save us from such calamity.

The future of the work was assured because it was inconceivable that we should ever be allowed to slip back to the days when infants and young children were allowed to be the victims of undisturbed indifference or mismanagement, and needlessly sacrificed. Rather did he see maternity and child welfare expanded until it embraced within its benign fold every expectant mother and every child irrespective of class. He thought he saw the day coming when we should have health visitors with higher qualifications, and perhaps, some day, with medical degrees. The *health and welfare of our mothers and children* were national assets, and, as such, ought not to be left to the uncertain caprices of voluntary efforts which—praiseworthy though they were—must always be handicapped by want of money, and by their charitable nature, which made them offensive to a large section of the community.

Dr Spinks envisaged the day when infants' hospitals, few in number at present, would be numerous and when many of those in industrial areas would have their own country or seaside convalescent homes. The future would also bring a wide extension of open air and natural and artificial sunlight treatment, and unnecessary artificial feeding would be rigidly checked or abolished altogether. A halt must not be called in this work until every preventable calamity that befell women and children had been studied with good effect. When that day came there would only be one thing more for the maternity and child welfare movement to do, and that was to pass on the preventive principles upon which it was founded to the general public, so that instead of having as now an army of doctors curing disease we should have an army of doctors preventing it.

In the course of the discussion Dr MARION MACKENZIE (Leeds) expressed the opinion that maternity hospital nurses should be better trained. They did not know enough about the feeding of infants.

Dr CHRISTINE THOMSON (Durham) suggested that one of the greatest obstacles to the progress of child welfare work lay not in the difficulties of finance, nor in a lack of public interest, but in the scarcely veiled opposition of the general practitioner. The general practitioner regarded the tuberculosis officer or V D officer as a specialist, but did not apparently regard the medical welfare officer as a specialist even in infant feeding and frequently would alter the diet of a dyspeptic baby without consulting the welfare officer.

Dr ELIZABETH LANE (Newcastle) spoke of the enormous increase of artificial feeding since she first attended a welfare centre in 1913. One reason was that many mothers did not know how to breast-feed children successfully. The result was early evidence of indigestion and a consequent weaning of the baby simply through ignorance. A second reason, perhaps equally important, was the enormous amount of free food that had been distributed throughout Great Britain in recent years. This encouraged the worst type of mother—the young mother, married on the dole and irresponsible, living with her own or his people. A baby arrived and she was only too anxious to hand it over to its grandmother to be fed with free food, because then she was able to go out and enjoy herself. Weaning often occurred soon after a mother got up when there was a temporary failing of breast milk. Then was the time for the health visitor to give useful advice.

Dr MARGARET EMSLIE (London) expressed the opinion that one of the chief difficulties in connexion with breast-feeding was that they were up against the commercial spirit, and that people who had the temerity to announce the arrival of a baby through the press were assailed through the post by a number of firms selling artificial foods, gripe water, cod-liver oil, and so on. Such propaganda carried on while the mother was just recovering from confinement and was very receptive to influences was bad.

Dr SPINKS, in reply, said with regard to artificial feeding he agreed that it was a matter of teaching doctors and everyone else, not only mothers. Very few people knew anything about babies. Dr Thomson had raised the question of the general practitioner's attitude. That again was a matter of opinion. His own experience *had been a happy* one and he personally had nothing to complain of in Newcastle. The doctor looked at the question from the mother's point of view, and the welfare officers looked at it

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXI

THE TREATMENT OF NIGHT TERRORS IN CHILDREN

Night terrors may be temporary disturbances without significance for the future welfare of the child or may be the sign of a nervous tendency which in itself calls for careful handling in order to avoid psycho-neurotic reactions in later life Except in degree there is no difference between them and nightmares, but the extreme forms cause so much distress to the parents that treatment will be urgently demanded We cannot claim to know definitely any general or specific cause; night terrors are akin to the anxiety dreams of adult psychoneurotics and in some adult cases a recurrent anxiety dream of constant type may exhibit an unbroken continuity with an infantile night terror that possessed the same content

Physical Factors

Physical disorders can stimulate these troubles, though their importance is less than is sometimes supposed. A heavy supper may cause enough discomfort to provoke a nightmare, but patients subject to anxiety dreams find that the time or quantity of the evening meal makes no difference to the symptom So in the child a careful elimination of physical irritation may lead to the disappearance of the terrors, but after adenoids, intestinal parasites, constipation, errors in diet, and all other probable causes of irritation have been removed, there will remain cases in which a source of fear must be presumed to exist in the mind of the child

Sometimes the cries of the child may give a clue which enables the parent to recognise the influence of an actual incident, of a foolish threat, or a terrifying story In such a case the child should be encouraged to talk about the matter, either at the time of the nocturnal disturbance or during the day Modern experience leads to the belief that to prevent nervous trouble, whether as night terrors or in any other form, it is better to encourage the child to talk out a terrifying experience rather than, by a careful avoiding of it, to let the memory remain as an unassimilated mental fragment

The Effect of Excessive Care

There are, however, cases in which fright of any kind can be confidently excluded The child has been carefully secluded from rough knocks of any kind, the nurse is above suspicion, and yet there is displayed an unaccountable nerviness which shows itself particularly in night terrors An only child, or the youngest of several, often shows this sequence, in which it is at first sight impossible to imagine any cause for the nervous manifestations

Certainly there is an inborn tendency to excessive reaction, for quite young babies show wide differences in their reactions to simple stimuli such as sudden noises, but night terrors are matters of later years, and even when we have weighed the factors of inborn temperament and physical stimuli the conceptual content of the terrors demands some hypothesis It is notable that the carefully brought up child is more liable to suffer than another brought up in rougher surroundings, and the investigation of nervous adults has thrown enough light upon the mental processes of the child to enable us to guess at the possible harmful results of excessive care The over-anxious parent tends to stress the emotional aspect of those prohibitions which form so great a part of the education of the child

The teaching of sphincter control and the enforcing of the demands of modesty, for example, may be carried out with an emotional emphasis which easily produces in the child the conception of an unknown something which must not be offended, and here may be one source of the fear that manifests itself as nervousness

Investigation of adults has shown, too, that the childish mind is busied with thoughts about sex and reproduction to a degree which, on account of our loss of memory for our early years, we do not usually suspect. The non-recognition of this fact allows of incidents taking place in presence of the child which may stimulate in him the sense of dread and mystery To share the bedroom of the parents obviously provides the opportunity for such incidents, and here may be found an explanation of the greater liability of the only or youngest child to suffer from night terrors, the birth of a child usually ensures for its predecessor a healthy banishment from the parental bedroom

Apart from this, it is plain that, if parents decide that the curiosity of the child as to sex and reproduction is to be unsatisfied and inevitable questions are to be shelved, the danger of untoward incidents is great, there is nowadays, however, a tendency for these subjects to be handled frankly and unemotionally as soon as they arise and this method may be expected to avoid at least some of the nervous troubles of childhood The principle should be widely applied and we must remember that any subject in which the child scents mystery may become a source of fear Death as much as birth, may become the subject of half-conscious fearful speculations although the child, if allowed to do so, accepts either without any special sense of mystery

The provision of material for fearful speculation may explain why carefully brought up children are subject to night terrors, but these remarks about the possible source of the symptom are to be considered chiefly from the point of view of prevention It is practically out of the question to elicit from the child what that source is terrifying hallucinations may be described but their significance remains hidden as far as investigation of the child can tell us This difficulty need not prevent us from offering to an intelligent child an explanation of the faculty of visualisation and suggesting that the hallucinations should become a source of interest rather than of fear This can do no harm and occasionally succeeds.

A Secondary Factor.

There is a secondary factor in these, as in so many nervous symptoms The nocturnal disturbance obtains for the child the presence of the loving parent, and this satisfaction may help to maintain the symptom To take the sufferer into the parent's bedroom is therefore a step to be avoided, and in every case it should be obvious that the less emotion there is shown the better In fact separation from the parents may sometimes be clearly indicated and their resistance to such a proposal is often a measure of its necessity

On the other hand, the removal of specific causes of fear is justifiable One child may be perturbed by a ray of light, another by darkness, and for another the presence of a particular object may stimulate fear, and adjustments should be made accordingly

Symptomatic Treatment

When attention has been paid to the physical condition of the child and to the material and emotional environment when sympathetic attempts have been made to get the child to talk freely about the nature of the terrifying hallucinations, and when the parents have been properly treated, there will remain cases where we are driven to symptomatic treatment Bromides may then be tried in the usual doses or luminal (pheno-barbital) in quarter-grain doses at night for a child of five

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Special Articles.

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Development and Future of Maternity and Child Welfare

He said that the development of the maternity and child welfare movement was probably the most convincing of the many signs of an awakening public interest in public health. It was almost unheard of 25 years ago, and yet though it had been started with all the financial and other disabilities inseparable from voluntary activities it had nevertheless gripped the imagination from the outset and had made for itself a safe and permanent abiding place in national affairs To-day nearly every district—both urban and rural—had its maternity and child welfare scheme, and in England alone there were more than 2000 centres from most of which came reports of rapidly increasing attendances At the Newcastle centres the attendances had increased from 4000 in 1918 to 50,000 in 1926. Dr Spinks traced the development of child welfare work from a centre established in Ghent in 1901. In 1924–25 the total expenditure on maternity and child welfare work in this country amounted to about 1½ million pounds, which represented less than one halfpenny a pound in a national budget of over 800 million pounds—not a large sum to spend on so important an object Preventable ill-health cost the nation many times that amount annually. Those concerned with promoting maternity and child welfare had two main objects in view, first to maintain in good health those who were already healthy—practically every child was healthy at birth—and secondly to improve and increase national efficiency. Thus in principle the movement was essentially preventive and since it dealt with the health of the public at the outset of life it must be the basis of public health Experience had proved that a great deal of the suffering prevalent among young children was due not so much to want of money as to want of knowledge, and unfortunately this want of knowledge prevailed on a vitally important subject from the child s point of view that was its proper food At the present time the bottle-feeding of infants was rampant and unless the craze was checked England would become a bottle-fed nation. There was nothing but teaching at maternity and child welfare centres to save us from such calamity.

The future of the work was assured because it was inconceivable that we should ever be allowed to slip back to the days when infants and young children were allowed to be the victims of undisturbed indifference or mismanagement and needlessly sacrificed Rather did he see maternity and child welfare expanded until it embraced within its benign fold every expectant mother and every child irrespective of class He thought he saw the day coming when we should have health visitors with higher qualifications and perhaps some day, with medical degrees The health and welfare of our mothers and children were national assets, and, as such, ought not to be left to the uncertain caprices of voluntary efforts which—praiseworthy though they were—must always be handicapped by want of money, and by their charitable nature which made them offensive to a large section of the community.

Dr. Spinks envisaged the day when infants hospitals, few in number at present, would be numerous and when many of those in industrial areas would have their own country or seaside convalescent homes The future would also bring a wide extension of open air and natural and artificial sunlight treatment, and unnecessary artificial feeding would be rigidly checked or abolished altogether. A halt must not be called in this work until every preventable calamity that befell women and children had been studied with good effect When that day came there would only be one thing more for the maternity and child welfare movement to do, and that was to pass on the preventive principles upon which it was founded to the general public, so that instead of having as now an army of doctors curing disease we should have an army of doctors preventing it.

In the course of the discussion Dr. MARION MACKENZIE (Leeds) expressed the opinion that maternity hospital nurses should be better trained. They did not know enough about the feeding of infants.

Dr. CHRISTINE THOMSON (Durham) suggested that one of the greatest obstacles to the progress of child welfare work lay not in the difficulties of finance, nor in a lack of public interest, but in the scarcely veiled opposition of the general practitioner The general practitioner regarded the tuberculosis officer or V.D. officer as a specialist, but did not apparently regard the medical welfare officer as a specialist even in infant feeding and frequently would alter the diet of a dyspeptic baby without consulting the welfare officer.

Dr ELIZABETH LANE (Newcastle) spoke of the enormous increase of artificial feeding since she first attended a welfare centre in 1913. One reason was that many mothers did not know how to breast-feed children successfully The result was early evidence of indigestion and a consequent weaning of the baby simply through ignorance A second reason, perhaps equally important was the enormous amount of free food that had been distributed throughout Great Britain in recent years This encouraged the worst type of mother—the young mother, married on the dole and irresponsible living with her own or his people A baby arrived and she was only too anxious to hand it over to its grandmother to be fed with free food, because then she was able to go out and enjoy herself. Weaning often occurred soon after a mother got up when there was a temporary failing of breast milk. Then was the time for the health visitor to give useful advice.

Dr. MARGARET EMSLIE (London) expressed the opinion that one of the chief difficulties in connexion with breast-feeding was that they were up against the commercial spirit and that people who had the temerity to announce the arrival of a baby through the press were assailed through the post by a number of firms selling artificial foods gripe water, cod-liver oil, and so on. Such propaganda carried on while the mother was just recovering from confinement and was very receptive to influences was bad.

Dr. SPINKS in reply, said with regard to artificial feeding he agreed that it was a matter of teaching doctors and everyone else not only mothers Very few people knew anything about babies. Dr Thomson had raised the question of the general practitioner's attitude. That again was a matter of opinion His own experience had been a happy one and he personally had nothing to complain of in Newcastle The doctor looked at the question from the mother's point of view and the welfare officers looked at it

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXI

THE TREATMENT OF NIGHT TERRORS IN CHILDREN

NIGHT terrors may be temporary disturbances without significance for the future welfare of the child or may be the sign of a nervous tendency which in itself calls for careful handling in order to avoid psycho-neurotic reactions in later life Except in degree there is no difference between them and nightmares, but the extreme forms cause so much distress to the parents that treatment will be urgently demanded We cannot claim to know definitely any general or specific cause, night terrors are akin to the anxiety dreams of adult psychoneurotics and in some adult cases a recurrent anxiety dream of constant type may exhibit an unbroken continuity with an infantile night terror that possessed the same content

Physical Factors

Physical disorders can stimulate these troubles, though their importance is less than is sometimes supposed A heavy supper may cause enough discomfort to provoke a nightmare, but patients subject to anxiety dreams find that the time or quantity of the evening meal makes no difference to the symptom So in the child a careful elimination of physical irritation may lead to the disappearance of the terrors, but after adenoids, intestinal parasites, constipation, errors in diet, and all other probable causes of irritation have been removed, there will remain cases in which a source of fear must be presumed to exist in the mind of the child

Sometimes the cries of the child may give a clue which enables the parent to recognise the influence of an actual incident, of a foolish threat, or a terrifying story In such a case the child should be encouraged to talk about the matter, either at the time of the nocturnal disturbance or during the day Modern experience leads to the belief that to prevent nervous trouble, whether as night terrors or in any other form, it is better to encourage the child to talk out a terrifying experience rather than, by a careful avoiding of it, to let the memory remain as an unassimilated mental fragment

The Effect of Excessive Care

There are, however, cases in which fright of any kind can be confidently excluded The child has been carefully secluded from rough knocks of any kind, the nurse is above suspicion, and yet there is displayed an unaccountable nerviness which shows itself particularly in night terrors An only child, or the youngest of several, often shows this sequence, in which it is at first sight impossible to imagine any cause for the nervous manifestations

Certainly there is an inborn tendency to excessive reaction, for quite young babies show wide differences in their reactions to simple stimuli such as sudden noises, but night terrors are matters of later years, and even when we have weighed the factors of inborn temperament and physical stimuli the conceptual content of the terrors demands some hypothesis It is notable that the carefully brought up child is more liable to suffer than another brought up in rougher surroundings, and the investigation of nervous adults has thrown enough light upon the mental processes of the child to enable us to guess at the possible harmful results of excessive care The over-anxious parent tends to stress the emotional aspect of those prohibitions which form so great a part of the education of the child

The teaching of sphincter control and the enforcing of the demands of modesty, for example, may be carried out with an emotional emphasis which easily produces in the child the conception of an unknown something which must not be offended, and here may be one source of the fear that manifests itself as nervousness

Investigation of adults has shown, too, that the childish mind is busied with thoughts about sex and reproduction to a degree which, on account of our loss of memory for our early years, we do not usually suspect The non-recognition of this fact allows of incidents taking place in presence of the child which may stimulate in him the sense of dread and mystery To share the bedroom of the parents obviously provides the opportunity for such incidents, and here may be found an explanation of the greater liability of the only or youngest child to suffer from night terrors; the birth of a child usually ensures for its predecessor a healthy banishment from the parental bedroom

Apart from this, it is plain that, if parents decide that the curiosity of the child as to sex and reproduction is to be unsatisfied and inevitable questions are to be shelved, the danger of untoward incidents is great, there is nowadays, however, a tendency for these subjects to be handled frankly and unemotionally as soon as they arise and this method may be expected to avoid at least some of the nervous troubles of childhood The principle should be widely applied and we must remember that any subject in which the child scents mystery may become a source of fear Death, as much as birth, may become the subject of half-conscious fearful speculations although the child, if allowed to do so, accepts either without any special sense of mystery

The provision of material for fearful speculation may explain why carefully brought up children are subject to night terrors, but these remarks about the possible source of the symptom are to be considered chiefly from the point of view of prevention It is practically out of the question to elicit from the child what that source is terrifying hallucinations may be described but their significance remains hidden as far as investigation of the child can tell us This difficulty need not prevent us from offering to an intelligent child an explanation of the faculty of visualisation and suggesting that the hallucinations should become a source of interest rather than of fear This can do no harm and occasionally succeeds

A Secondary Factor

There is a secondary factor in these, as in so many nervous symptoms The nocturnal disturbance obtains for the child the presence of the loving parent, and this satisfaction may help to maintain the symptom To take the sufferer into the parent's bedroom is therefore a step to be avoided, and in every case it should be obvious that the less emotion there is shown the better In fact, separation from the parents may sometimes be clearly indicated and their resistance to such a proposal is often a measure of its necessity

On the other hand, the removal of specific causes of fear is justifiable One child may be perturbed by a ray of light, another by darkness, and for another the presence of a particular object may stimulate fear, and adjustments should be made accordingly

Symptomatic Treatment

When attention has been paid to the physical condition of the child and to the material and emotional environment, when sympathetic attempts have been made to get the child to talk freely about the nature of the terrifying hallucinations, and when the parents have been properly treated, there will remain cases where we are driven to symptomatic treatment Bromides may then be tried in the usual doses or luminal (pheno-barbital) in quarter-grain doses at night for a child of five

MILLAIS CULPIN, M D Lond, F R C S Eng,
Lecturer on Psychoneuroses, London Hospital
Medical College

could not be excluded. Antenatal care would, however, save large numbers of babies, and they had every reason to believe that by tackling the question of antenatal care a material difference to the rate of maternity mortality and stillbirths could be made. In reply to a question Mr. Evers said he would trust no case entirely to a midwife. No woman should be allowed to go and pick a midwife. She should have to go and pick a doctor and a midwife, and the doctor should then pass the patient as suitable and fit to have labour carried through by the midwife. Antenatal care should not be entrusted to a midwife.

THE LIMITATION OF EXPERT EVIDENCE

(By a Legal Correspondent.)

In the course of a long case which is now before him in the Chancery Division, Mr. Justice Tomlin has had something to say in relation to the calling of expert witnesses. He pointed out that there are very few aspects of life to-day which escape the cunning eye of science, so that in many cases it is open to the parties to introduce a string of experts. He went on to say that if a litigant was left free to call all the evidence possible, it placed a weapon in the hands of persons of large resources. He therefore enunciated a rule, which he proposed to follow in the case before him that only two experts should be called unless there were special circumstances justifying a party in asking that more should be heard. In the present instance—an inquiry into the cause of the flooding of certain mines in South Wales—the plaintiffs' case had taken 26 days, and their two experts had been so fully heard that the issues had become plain. Any rule limiting the amount of expert evidence would be of considerable importance to the medical profession. In the first place, no member of the profession wants to go to court as a witness more often than he can help. Apart from the time he spends in preparing and giving his evidence, he is often compelled to make a long journey to a distant court only to find that the case has been adjourned. In the class of action in which the medical profession has but too good a reason to take an interest—namely, the action for malpraxis—to support a charge of negligence the plaintiff will of necessity rely upon the evidence of practitioners drawn (if possible) from the front of the profession; to refute the charge, the defendant will endeavour to procure the best evidence he can. Those who have the conduct of such litigation know well its cost—indeed the knowledge is made common by subscription lists in the medical journals. Any rule, then, which would limit the number of *mere* expert witnesses on *either* side would necessarily diminish the expense, and the length of the hearing of an action for negligence. It would be so far to the good. But if such a rule endangered the rights of litigants no consideration of convenience or expense will justify it.

Some people, of course may take the view that to place any limitation upon the right to call experts is to unduly restrict the privileges of a litigant. But it is conceived that when the true meaning of "expert evidence" and the proper functions of an expert witness are appreciated, no hardship can occur. As the learned judge took care to point out, a true and accurate knowledge of science and scientific principles may be essential for those who have to apply the law to the facts of particular cases; and although a learned judge may know something of medicine, he cannot hope to do justice unless he is assisted by those who have made it a lifelong study. But there is all the difference in the world between a mere witness and an "expert" witness. The one is called to prove the existence or non-existence of certain facts; the other is there to express an opinion as to what will or is most likely to happen given a certain set of facts. His opinion (if he is a doctor) may not be shared by another practitioner of equal standing in his profession; but it will be for the court to decide which opinion to adopt in determining the issue in the case. In these circumstances it is manifest that an expert must base his opinion upon reasons which he can explain to the judge, and he is the best expert who can best explain himself to one who may have but an inkling of scientific knowledge. Some examples may be interesting.

It was held in an old case (R. *v.* Wright (1821), R. & R. 456) that a witness having medical qualifications may be asked whether such and such appearances proved by other witnesses, are, in his judgment, symptoms of insanity. But a doubt was expressed as to whether such a witness can be asked whether from other testimony given, the act with which the prisoner is charged is in his opinion an act of insanity, that being the very point to be decided by the jury.

It was held in a recent case that the evidence of a medical man was admissible as to the materiality of facts not disclosed in an action on a policy of life assurance (Yorke *v.* Yorkshire Insurance Co., [1918] 1 K.B. 662).

The evidence of experts, however, does not stand much chance if mere theory is opposed to fact. So in a case heard in 1861 (Brock *v.* Kelloch, 30 L.J. Ch. 498), the question was whether a child was or was not born alive. The evidence in the affirmative of the accoucheur, who attended the mother in her confinement, and who was a person of competent skill and integrity was taken to outweigh the contrary opinions of numerous medical men of eminence who were subsequently consulted upon the facts stated.

Viewing the position of an "expert" from this standpoint, it will be seen that the intention is to place a limit, not upon the amount of evidence but upon the amount of "opinion" which is to be voiced upon the scientific result or effect of that evidence. As the rule is to apply equally to plaintiff and defendant there is no reason to apprehend that it will be attended with any serious consequences to the administration of justice. One thing is certain: it will tend to diminish the costs of litigation.

INTERNATIONAL OPHTHALMOLOGICAL CONFERENCE

Early in October last, following on a resolution passed at the general meeting of English-speaking ophthalmologists in July, 1925, a small committee convened by Mr. E. Treacher Collins sent out a general notice to ophthalmological societies and ophthalmologists in all parts of the world, asking them to nominate two delegates from each country to confer on the question of the re-establishment of International congresses and on other matters of International ophthalmological interest. The response to that notice has been widespread and already all the principal countries of the world have indicated their approval of the project, and for the most part have named their delegates.

Arrangements have been made provisionally for the committee to meet at The Hague on Tuesday, July 12th, on the *invitation of the* Netherlands Ophthalmological Society. Mr. Treacher Collins will attend as convener of the conference.

The delegates nominated are:—Argentine: Prof. Dr. Enrique B. Demaria and Prof. Dr. Raul Argañaraz. Austria: Dr. Adalbert Fuchs and Prof. Dr. Josef Meller. Belgium: Dr. Henri Coppez and Dr. Léon Weekers. Bulgaria: Prof. Dr. C. Pascheff and Dr. Slavoff. China: Dr. T. P. Lee. Czecho-Slovakia: Dr. A. Elschnig and Prof. Lese. Denmark: Dr. K. K. K. Lundsgaard and Dr. Chr. F. Bentzen. Finland: Prof. V. Grönholm and Dr. Y. G. Lindberg. France: Dr. Morax and Dr. Terrien. Germany: Herrn Prof. Dr. Axenfeld and Herrn Prof. Dr. Wessely. Great Britain: Sir J. Herbert Parsons and Mr. Leslie Paton. Holland: Prof. Dr. G. F. Rochat and Prof. Dr. J. van der Hoeve. Hungary: Prof. Emile de Grósz and Prof. L. de Blaskovich. Japan: Prof. S. Ishihara and Prof. Oguchi. Norway: Prof. Dr. Hagen and Dr. Malling. Roumania: Dr. C. Pandelescu and Dr. N. Rásvan. Spain: Dr. M. Marquez and Dr. F. Poyales. Sweden: Prof. Fritz Ask and Prof. Albin Dalén. Switzerland: Prof. J. Gonin and Dr. Ernst Pfluger. United States: Dr. G. E. de Schweinitz and Dr. Arnold Knapp.

The following countries have intimated their intention of taking part but have not yet nominated their delegates: Cuba, Italy, Poland, Yugo-Slavia.

from the point of view of the child They said they were not taking patients away from the medical practitioner , they were actually sending him patients Bottle-feeding was increasing in many places not for want of money, but for want of knowledge His experience among the miners who were on the dole and getting little money was that their wives were well able to keep on breast-feeding their babies if they had the knowledge and desire to do so

Infant Feeding.

Dr H **GLEN DAVISON** read a paper on the Feeding and Care of the Premature Infant in the Princess Mary Maternity Hospital He stated that last year they had 165 single premature births and 36 cases of twins, making a total of 201 prematurely born in hospital. Out of these 70 had been stillborn, which left 131 Of these 29 had died and they had been able to send home on the tenth day after birth 102, or 78 per cent of the whole Dr Davison said that they had thrown the teaspoon away as a form of measurement, and he described how they worked on set formulæ which showed just what a prematurely born infant was receiving in protein, fat, sugar, and calories. Whilst they were ready to vary the formula at need it was essential to know at the outset exactly what they were giving the infant and why they were changing from one food to another

Dr **JAMES A STEPHEN** discussed some practical points in infant feeding. Many mothers, he said, complained that the milk left them when they got up out of bed, and he suggested that this might be due to physical causes. Often a mother would get up and sit by the fire for a short time insufficiently clad and catch cold Whilst agreeing that breast-feeding was the form of feeding most to be desired, Dr Stephen stated that a mother's diet of tea and white bread would not provide the wherewithal to feed an infant, and he had had to change his methods in the last year or two on recognising how many mothers were in poor health and anæmic He had had to make up his mind whether a woman was really fit to breast feed her baby with anything like complete results, and he had had to supplement or change the method of feeding altogether, so that largely because of the general condition of the mother he was not so whole-hearted a supporter of breast-feeding as he was Dr Stephen examined the requirements of the under-weight child and the measures that could make milk more digestive to the artificially fed child, showing how lactic-acid milk had outstanding advantages over sweet cow's milk It ought to be possible to prescribe a suitable diet for any child Most of the patent foods were more expensive than cow's milk, but where a mother was careless or ignorant it was often convenient to order those foods Dr Stephen also emphasised the necessity of knowing exactly what was being given to the child Unless they could prescribe a diet that could be easily and accurately made up it was better to turn to the patent food, because mothers would not take the trouble to make anything that was not easy Dr Stephen pointed out that although the patent food manufacturers were in business for commercial purposes, some of them were very interested in welfare work and by scientific research were trying to help it on They should be encouraged in this by the cooperation of the medical profession.

Dr T Y **FINDLAY**, speaking on the clinical value and uses of measuring infants, said one might actually feed a child by its height It had been shown that for every centimetre of its height a normal, healthy child absorbed 14 g of mother's milk So if they wished to know how much to give a child they could measure it and from that calculate its food He did not, however, think this method strictly accurate Dr Findlay discussed the advantages and disadvantages of this and other methods of estimating food require-ments In the subsequent discussion it was suggested that the process outlined by him should be of practical value especially in connexion with observation wards and special clinics where certain infants were difficult to deal with

Mr F C **PYBUS** spoke on pyloric stenosis in infancy chiefly from the surgical standpoint, and discussed the eugenic problem of good parentage as a factor in promoting child welfare

Dr. **MABEL BRODIE** read a paper on

Maternity and Child Welfare Problems in a County Scheme,

in which she stated that most county problems would be solved if sufficient money was available, but to-day it seemed impossible to get enough money to do the work efficiently Health visiting, she thought, would always present difficulties in the counties, because there was nothing that provoked more discussion than the duties of a health visitor—whether district nurses ought to do the health visiting or whether a special officer should be set aside for that purpose Unless the number of health visitors was adequate no following up could be done It was a great advantage to have a health visitor attached to a medical officer attending a centre so that she could see that a mother was carrying out the advice given her Antenatal work was still a problem in most places, and where one had no separate antenatal centre existing it was difficult to get into touch with expectant mothers

Although many county centres were crowded out with infants they had not yet solved the problem of dealing with the pre-school child For this they required more officers and better premises and facilities It did not seem possible to provide separate sessions for these children, partly because in the mining areas particularly the mothers found it difficult to get away more than once a week

Dr F H **MORISON** spoke of the difficulties of carrying on maternity and child welfare work in his county area, where a population of 200,000 was scattered over nearly a million acres Practically all the travelling had to be done by motor ; sometimes a health visitor could only visit one baby in a day, going by train for 20 miles, then bicycling for another six or seven, and walking two or three miles more. A motor dental van had done excellent work all over the rural areas He had anticipated the difficulty in getting hold of the parents and children, but so many came that he had recommended his committee to start another dental van which would act also as a maternity and child welfare clinic That was the only way he could see it possible to deal with such a scattered population over such a huge area

Dr **EUSTACE HILL** said that Dr Brodie had worked in the county of Durham some seven years, and the great advance that had been made in the county were due largely to her enthusiasm , the estimate last year for maternity and child welfare work in the county was nearly £60,000 Unfortunately owing to the coal trouble they had been landed into increased expenditure and, rightly or wrongly, in the feeding of the pre-school child and the nursing mother the sum of over £100,000 had been spent in addition to the normal expenditure Further development was at present not possible, but extension of the nursing services and provision for orthopædic cases were schemes to be undertaken in the future As to the use of district nurses as health visitors, many of the former had been trained to look on their work from the curative rather than from the preventive side. A district nurse often required two or three months' special training on the preventive side of health work before she became efficient, so personally he was strongly in favour of well-qualified health visitors trained as such Speaking of clean milk-supply Dr Hill said he had been amazed at the amount of tubercle bacilli to be found in the milk in country districts Since cows had been found in the byres yielding tuberculous milk a welfare medical officer must be very careful in ordering or recommending unboiled milk for young children

Mr **HARVEY EVERS** communicated common observations on stillbirth and its prevention by antenatal methods Mr Evers was an optimist about antenatal supervision, though in spite of it some babies and mothers would still be lost, since errors

Correspondence.

"Audi alteram partem"

THE MANCHESTER MEDICAL SCHOOL

To the Editor of THE LANCET.

SIR —As the Manchester Medical School is now well over 100 years old it seems desirable that material relating to its history and the history of medicine generally in the town should be collected carefully lest it should be lost The Manchester Medical Society has therefore decided to collect and store in its library all material relating to this history, and we are now writing to appeal for such material.

It is difficult to define what is wanted. but we may make a few suggestions—namely, papers such as minute books or lists of students of the earlier medical schools pictures of these schools diplomas and certificates granted from the schools, reports of prize-givers and inaugural addresses photographs of the medical men of past generations. and letters and diaries written by them The following episode may be used to illustrate the height of our ambition In 1840 in the opening address Thomas Turner. pointing to a small oval table painted green and set on small wooden wheels which stood near him said. ' Excuse me making a digression and directing your attention to that table, mean looking insignificant intrinsically of no value as it is. it was the table of John Hunter This is John Hunter s dissecting table It would seem almost as if the glory of London Anatomy were travelling northward, and that we had arrested it in Manchester It is more than likely that, on that very table, John Hunter prepared some of those splendid specimens which now enrich the walls of the museums of the Royal College of Surgeons Let us now, therefore. that we possess a relic of that great man, be stimulated by the associations it awakens, to pursue the same path that he pursued " Alas this relic has disappeared.

Doubtless the relatives of former leaders of medicine in Manchester are now scattered all over the world but this letter may remind them that the memory of those leaders is still treasured Communications should be made to Dr. Leech the Manchester Medical Society at the University of Manchester

We are Sir. yours faithfully.

ALFRED A MUMFORD. M D.
President of the Manchester Medical Society
E. M BROCKBANK M D. F R C P.
Chairman of the Library Committee

Feb 14th, 1927

SANATORIUMS AND PUBLIC PREJUDICE

To the Editor of THE LANCET

SIR —It has been my misfortune in the short space of the past four months to have no less than four patients suffering from curable or border-line phthisis discharge themselves from sanatoriums after a stay varying from one week to two months

As taxpayers we contribute towards a huge sum annually to maintain the sanatorium method of dealing with tuberculosis, and as doctors we are responsible for seeing that the money is not wasted I have, therefore. taken some pains to discover why these patients would not stay until discharge and I find that all four of them make two complaints which would seem to be worth making public

(1) They all objected to living with advanced cases. As one man's mother said "It took the heart out of him to have a young chap like him dying in the next bed "

(2) They all complained that they " weren t given no medicine nor treatment nor nothing " and consequently did not see how they could be getting better

To take the second point first surely it would be possible for each patient on arrival to have explained to him the principles of treatment why no medicine would be ordered for him and how he would get better without medicine. and consequently why he should stay until he was cured

The first point I take it is a question of finance. but it seems to me rather straining at the gnat to deny the extra sum required while we swallow the camel of £2,600,000 annually.

I am Sir yours faithfully.
NEVILLE M. GOODMAN.

Lymington, Hants, Feb 14th, 1927

DEATHS UNDER ANÆSTHETICS

To the Editor of THE LANCET

SIR —May I be permitted to give the strongest support in my power to the views expressed by Dr Stanley Sykes in his letter of Feb 12th ? They are chiefly an enforcement of the doctrine which is too often lost sight of—that safety in anæsthesia depends mainly on the anæsthetist The drug and the method are secondary considerations so far as safety is concerned It is not in common talk the gun but the man behind the gun which matters most This truth has never been more forcibly expressed than it was by the Anæsthetics Committee of the British Medical Association years ago That committee stated They are convinced that by far the most important factor in the safe administration of anæsthetics is the experience which has been acquired by the administrator ' There is no such thing as an absolutely safe anæsthetic and only an ignorance of physiology and a lack of clinical experience can lead people to imagine that ether is perfectly safe no matter in what manner or to what extent they use it. It is of course much easier to bring about death with chloroform than it is with ether But I agree absolutely with Dr Sykes that the chances of fatality are reversed if a good anæsthetist gives the chloroform and an inexperienced one the ether

I am Sir yours faithfully.

London, Feb 15th 1927 J. BLOMFIELD.

PULMONARY EMBOLISM FOLLOWING OPERATION.

To the Editor of THE LANCET

SIR —The favourable comments on my paper on Post-Operative Embolism which appeared in your issue of Jan 15th are gratifying. but I should like to comment on some of the questions raised by your correspondents

Mr Lockhart-Mummery suggests that a tight binder round the abdomen is a factor of importance in producing venous stasis by hampering the excursions of the abdominal wall I submit that venous circulation in the abdomen depends not on excursions of its wall but on an alternating rise and fall of intra-abdominal pressure Surely this is most easily obtained by fixing the abdominal wall and contracting and relaxing the diaphragm The difficulty seems to be not that binders are too tight but that however they are applied they cannot adequately support an incision against a rise of intra-abdominal pressure I am glad to see that Mr T B Davies agrees with me on this point

By laying stress on stasis in my paper I did not mean to imply that this was the only factor in the production of thrombosis but simply that it predisposed to it The nature of the second factor remains to be determined Mr Lockhart-Mummery suggests that it is thrombokinase but from the last paragraph of his letter I doubt that he is entirely satisfied that he has a complete answer to the question If the figures in the paper are accepted and he is prepared to accept them on the subject of sepsis any theory as to the nature of the second factor must explain three facts 1 That massive embolism is quite as common in medical as in surgical cases 2 That the liability to embolism increases with age 3 That in any given condition only a very small proportion of cases contracts this complication

BERLIN.

(FROM OUR OWN CORRESPONDENT)

Medical Inspection of Berlin Schools

THE Berlin municipal authorities have decided to appoint henceforth only full-time medical officers to the municipal schools. The number of medical officers will be increased and the number of children for whom each is responsible will be reduced. This is very well from the standpoint of hygienic control, but there is one great drawback to the scheme. Hitherto medical officers have had to do no more than inspect the children and give advice to the parents, but it is now proposed to extend their activities to include attendance in cases of illness, the regulations stating that the medical officer will have to attend a sick child when there is no guarantee of regular attendance by some other medical man. This decision has caused alarm in medical circles, especially amongst those engaged in children's practice. Their work in Berlin was already much limited by the establishment of municipal dispensaries for infants, where the mothers receive medicine and refreshments at low prices, or even free of charge, and where medical attendance is given on a large scale. Medical men whose practice has already suffered so much by the work of the clubs, and in other ways, will again sustain a great loss when the new regulations come into force, and it is to be hoped that the representatives of the profession will do everything in their power to combat them.

Medical Articles in the Lay Press

Prof Julius Schwalbe, the editor of the *Deutsche Medizinische Wochenschrift*, has been drawing attention to the increase of articles on medical subjects in the daily press and to certain nuisances connected with them. As I explained some time ago[1] the daily papers have been in the habit of regularly publishing articles, either by medical members of their staff or by other medical men, sometimes of great scientific renown. Lately there has been discussion in the daily press of difficult scientific matters, like the properties of vitamins and hormones, and the public, getting confused, has been led to consult quacks who are not troubled with such medical controversies. Medical articles in the daily papers, far from combating quackery, as was intended, thus help to increase its influence with laymen. On the other hand, descriptions of symptoms of diseases such as arterio-sclerosis, hypertonia, tuberculosis, and cancer which appear in daily papers, and are read by a large section of the public, are capable both of producing *malades imaginaires* and of alarming really sick people. Prof Schwalbe thinks that the lay press ought to abstain from describing symptoms and discussing diagnostic and therapeutic methods; the only medical articles that should be published are those on prophylaxis and hygiene. He holds that this would incidentally prevent any imputation that the articles are written rather for personal advertisement than public education.

Responsibility of Medical Men for Abuse of Cocaine

A medical man has recently been prosecuted because he prescribed cocaine for healthy people, thus enabling them to get it from a pharmacy. The German Supreme Court in Leipzig in its decision on the case stated that by an international treaty Germany has bound herself to limit the use of opium, morphine, and cocaine to the treatment of diseases and to prohibit it for other purposes. Therefore the import, export, production, and sale of those drugs is allowed only by special licence. Pharmacies do not require a special licence and may dispense these drugs on medical prescriptions, but a medical man prescribing cocaine for other than curative purposes is liable to be punished. Where a chemist has executed the doctor's prescription in good faith he may be held guiltless, but if he has done so knowing that the cocaine is to be used for other than medicinal purposes he is punishable as an accessory.

Supply of Drinking-water to Boats on the Rhine

The water-supply to the Rhine steamers is somewhat defective, according to Dr Klein, chief of the Düsseldorf Institute of Hygiene. It is true, he says, that posters in the ships warn people against drinking Rhine water and recommend the use of drinking-water specially carried on the ships. This water, however, is often kept in tanks standing on deck, the water thus being lukewarm in summer and frozen in winter. The tank itself is often found to contain mud, and river water is used to wash it out. Examination of a tank on board a steamer showed the presence of *Bacillus coli*. Investigation of some of the pumps ashore gave similar results, and strict regulations have now been carried out concerning the quality of drinking water and the cleansing of tanks. A still more efficacious measure is the provision of a tank boat which can steam along the Rhine to supply water to the ships, and a number of these boats are under construction.

Marriage and Mortality

Dr Silbergleit, director of the Berlin Municipal Statistical Office, recently read before the Berlin Society for Public Health a paper on the influence of marriage on mortality. Between the ages of 20 and 30 he said, the death-rate is higher among bachelors than among married men, for women, on the other hand the mortality of the married is 25 per cent higher than that of spinsters, owing to the dangers of pregnancy and childbirth. After the fortieth year of age there is no difference in the death-rate of married and unmarried women. The expectation of life for an unmarried man 25 years of age is 35 years; for a married man it is 41 years, and for a widower 33 years. The expectation of life for an unmarried woman of 25 is 40, for a married woman 42, and for a widow 39 years. For a man marriage thus apparently means an improvement in the chance of living, whilst for women it has not so marked an influence.

Specialism in Germany

Of the 44,000 qualified German medical men not less than 14,000 (or 32·5 per cent) are specialists. Of these 2428 describe themselves as specialists in skin, venereal, and urogenital diseases, and there is thus one specialist in these branches for every 26,000 of the population. There are 1688 specialists for internal diseases, 1661 for nervous and mental diseases, 1536 surgeons 1479 gynæcologists, 1399 aurists and laryngologists 1188 oculists, 975 pædiatrists, and 310 orthopædists. A further 570 combine general surgery with gynæcology and there are 409 specialists for pulmonary diseases, and 239 for gastric affections. The specialists live almost exclusively in the larger towns, except those who are associated with sanatoriums or other institutions in the country.

MEDICAL STUDENTS AND HOSPITAL CARNIVALS—Mr C Grant Robertson Principal of Birmingham University has uttered "a note of warning and misgiving" upon the amount of time consumed by preparation for hospital carnivals. "The annual carnival," he says in his report to the Court of Governors, "threatens to become a dangerous Frankenstein. The cause is admirable, but if it is going for the first four weeks of a term to absorb the full time, thought, and activities of a large body of students, their work and the work of the University will seriously suffer."

LEGACY OF £73,000 TO AN ORPHANAGE—At a sitting of Lancashire Chancery Court on Feb 7th the Vice Chancellor issued a declaration to the effect that the "Liverpool Seamen's Orphanage" and the "Royal Liverpool Seamen's Orphan Institution" are one and the same institution. The funds of the establishment will benefit to the amount of about £73,000 under the will of the late William Reed Pearce, who died last October. The sum was bequeathed to the "Liverpool Seamen's Orphanage," although by Royal Charter the title of the charity was altered in May, 1921, to the Royal Seamen's Orphan Institution.

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[1] THE LANCET, 1926, i, 881

graduation thesis being on progressive muscular atrophy She married shortly after qualification Owing to the ill-health of her husband, also a doctor, they lived in the south of France till his death in 1900, when Mrs Hoggan returned to London Shortly after this she visited America where she became interested in the colour question and later explored the conditions in native villages in South Africa For the last five years of her life she resided in Brighton where she was to be seen almost daily walking along the front Her health had been failing for the last three months, until when she was very active in body and mind and deeply interested in all matters connected with her profession

The Services.

ROYAL ARMY MEDICAL CORPS

THE undermentioned are secd Lts F McL Richardson, J W Eames, and W R C Spicer

The undermentioned to be Lts on prob F McL. Richardson, G Anderton, E H Hall R T P. Tweedy, and A. Sachs Temp Lts G A Walmsley and R A M Humphrey relinquish their temp rank of Lt Lt J W Eames (from R A.M C , T A), T E Moles, and W R C Spicer

Lt (on prob) A. K J Finch is confirmed in his rank

ARMY DENTAL CORPS

Capt D Clewer to be Maj

MILITIA

Maj T Hampson relinquishes his commn and retains the rank of Maj

TERRITORIAL ARMY

Lt -Col A. G Hay, having attained the age limit, is ret and retains his ranks with permission to wear the prescribed uniform.

Maj G A C Shipman, having attained the age limit, is ret and retains his rank with permission to wear the prescribed uniform

Capt H Wilson to be Maj

Lt K J Franklin resigns his commn

Lt G E Lindsay to be Capt

Lt G C Kelly, from Gen List T A (Aberdeen Univ Contgt (Infy Unit), Sen Div , O T C), to be Lt

INDIAN MEDICAL SERVICE

Col A A. Gibbs to be Maj -Genl

ROYAL AIR FORCE

Flying Officer G J Griffiths is promoted to the rank of Flight Lt

CANADIAN ARMY MEDICAL CORPS AWARDS

The following recommendations for awards to certain Canadian Army Officers in respect of services rendered during the war of 1914-19 having recently been put forward by the Government of the French Republic, H M the King has given unrestricted permission in all cases to wear the medals in question Médaille D'Honneur des Epidémies, en Vermeil Maj Gustav Archambault and Capts Leonidas Bergevin Blagdon, Real Dumont, Adrien Larose, and Gabriel Lefebvre En Argent Capt Alphonse Joseph Lefleur

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MANCHESTER ROYAL INFIRMARY —It has been decided that two women and two representatives of the working classes shall be appointed to the board of management

MEMORIAL TO MR HAMILTON DRUMMOND —On Feb 7th a meeting of the subscribers to this memorial was held at the Royal Victoria Infirmary, Newcastle, and it was decided that a bronze medallion portrait should be erected in the infirmary at a cost of not more than £100 and that a scholarship in clinical surgery should be established with the interest on the remainder of the sum subscribed It was stated that £886 had so far been collected, besides £243 contributed towards the special Yeomanry account, and the fund will probably close at £1200 Subscriptions have been limited to five guineas Mr Philip E Noble, Dr R P Ranken Lyle, and Mr G Grey Turner were appointed trustees of the Hamilton Drummond Memorial Fund

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND —At a meeting of the Council held on Feb 10th, Sir Berkeley Moynihan, the President, in the chair, Mr V Warren Low, as executor presented two silver cups bequeathed to the College by the late Mr Herbert William Page, in happy remembrance of his connexion with the College as a member of the Council and of the Court of Examiners The President stated that an election of three Fellows into the Council would take place on Thursday, July 7th, at 10 30 A.M , in the vacancies occasioned by the retirement in rotation of Sir John Bland-Sutton, Sir Cuthbert Wallace, and Mr. W Thelwall Thomas

UNIVERSITY OF BRISTOL —At recent examinations the following candidates were approved —

FINAL EXAMINATION FOR M B , CH B

Part II —Winifred P Brinckman Juan M Camps-Campins, Alan M Critchley, *Thomas F Hewer, Frederic W T. Hughes, †Reginald Jackson, and Edgar R Wide

* With distinction in Pathology

† With distinction in Forensic Medicine and Toxicology

Group I —Helen M Aldwinckle

Part I (*including Forensic Medicine and Toxicology*) —‡ Trevor H Berrill, Bernard J Boulton, Terence A Brand, ‖Ronald M Norman, Eric Southam, ‡Thomas B Wansbrough, and Arthur R Williams

‡ Distinction in Materia Medica, Pharmacy, Pharmacology, and Therapeutics

‖ Distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics, and Pathology

Part I only —Godfrey D J Ball, Owen J P Bollon, Thomas L Cleave Ronald D Jenkins, Helen B Murgogi, and Ethel M Redman

UNIVERSITY OF BIRMINGHAM —The Council and Senate on Feb 2nd granted permission to licentiates in dental surgery to wear a special gown

HARVEIAN SOCIETY.—At the Paddington Town Hall on Thursday, March 10th, at 8 30 P M., Sir Berkeley Moynihan will deliver the Harveian Lecture His subject will be Diverticula of the Alimentary Canal

OXFORD OPHTHALMOLOGICAL CONGRESS — The seventeenth annual conference will assemble at Keble College, Oxford, on the evening of Wednesday, July 6th, and meetings will be held on July 7th, 8th, and 9th A discussion on the Results of the Operative Treatment of Glaucoma will be opened by Dr William H Wilmer ophthalmologist-in-chief to the Johns Hopkins Hospital, Baltimore and the Doyne Memorial Lecture will be delivered by Prof K K K Lundsgaard, of Copenhagen, his subject being the Pneumococcus in connexion with Ophthalmology. Those who desire to contribute either papers or demonstrations should notify the hon secretary, Mr Bernard Cridland, Salisbury House, Wolverhampton

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —Dr G A. Sutherland will lecture for the Fellowship on Thursday, Feb 24th, on Fits and Faints The lecture will be delivered at 5 P M at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square W , and all members of the medical profession are invited to attend On Feb 23rd, at 5 P M., at the Royal Westminster Ophthalmic Hospital, Mr C L Gimblett will give a lecture on Affections of the Cornea. This lecture will also be free Dr Andrew Wylie will give a special demonstration at the Central London Throat, Nose and Ear Hospital on Feb 24th at 2 P M , members of the profession who wish to attend should notify the hospital secretary (Museum 1539) Beginning on March 7th the Brompton Hospital will hold a week's course, including demonstrations in artificial pneumothorax, X rays, the use of the electrocardiograph The Chelsea Hospital for Women will hold a course from March 14th to 25th and the Royal National Orthopædic Hospital will hold one from March 21st to April 2nd During the same fortnight there will be a late afternoon course, primarily for general practitioners, at the London Temperance Hospital From March 28th to April 9th the Queen's Hospital for Children will hold an all-day course, and from the same date, for two weeks, there will be a series of demonstrations at the Royal Eye Hospital on the Diagnosis and Treatment of Diseases of the Eye The Fellowship arranges practical courses in anæsthetics and also courses in obstetrics Arrangements can be made for clinical assistants in gynæcology Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

Personally I know of no theory that covers these facts but I suspect that the explanation lies in some unknown quality of the blood, more common in old people rendering it more liable to clot than it normally is, the very antithesis, in fact of the equally unknown quality present in hæmophilia Dr Des Vœux and Dr Owen appear to hold very much the same opinion

Dr Owen suggests that this underlying condition may be influenced by influenza and that cases of embolism are more common when this disease is prevalent I can only say that no indication of this is to be derived from the annual figures in my series of cases There is no significant variation in any particular year nor is there proof that embolism is becoming more frequent Again, without a post-mortem one cannot be sure that hæmoptysis in a case of influenza is due to embolism as it is a well-recognised feature of influenzal broncho-pneumonia

I believe that a study of the coagulation of the blood in a large series of elderly surgical patients before operation is performed and trying to detect a difference between those that develop embolism and those that do not, is the most hopeful line of investigation for the future I am, Sir, yours faithfully

Plymouth, Feb 15th 1927 W A LISTER

TREATMENT OF INFLUENZA

To the Editor of THE LANCET

SIR,—I am prompted to write this by the letter of "X" in your issue of Jan 15th, entitled Influenza and Some Gloomy Reflections Several years ago in private practice I worked out a formula which did exceedingly good service in the epidemic of 1918

The remedy consists of a capsule containing quinine hydrochloride, camphora monobromata, hexamethyleneamine, of each two grains, methylene-blue one grain These drugs are well mixed and pounded up together and the capsules filled in this proportion Smaller doses are of course used for children One capsule is given at the onset, followed if necessary in four hours by a second Not more than four should be used in 24 hours, and most of my cases have not required more than three in all, used two in the first 24 hours and one in the second Needless to say the drugs should be given as soon as possible after the onset, and no coal-tar derivatives, salicylic acid products, or other heart depressants should be used Rest in bed, elimination—laxatives and lots of hot tea, freshly made with cream and sugar added, are of course indicated

It is with considerable appreciation of my temerity that I present this formula as I have no series of any thousand cases at the back of it, but merely a possible fifth of this number spread over a number of years, for the reason that after the war I remained in Government service, which, as you know, requires a man to do what is needed to be done, and not that which he desires to do

I am, Sir, yours faithfully,

JULIUS H HURST

2802, Wisconsin avenue N W, Washington, D C,
Feb 4th, 1927

THE NEW ROYAL EAR HOSPITAL —On Feb 9th Mr Neville Chamberlain (Minister of Health) opened the Royal Ear Hospital (Duveen Memorial), which now forms part of University College Hospital In welcoming Mr Chamberlain Mr Geoffrey Duveen, the donor, said that it was hoped that the hospital would be a place where the latest knowledge would be available for practitioners and students who had hitherto been obliged to seek it abroad Mr Chamberlain said that in one year there were more than 50,000 children, or 1 in every 100 children attending school, who were to some extent suffering from defects which required diagnosis and treatment in such a hospital The new hospital is situated in Huntley-street, in close proximity to the main building of University College Hospital, with which it is connected by a subway The staff includes Mr Herbert Tilley Mr G Seccombe Hett, Mr Richard Lake, Dr E A Peters, Mr H A Kisch, and Mr J F O'Malley There is accommodation for about 10 in-patients, including private wards for patients of moderate means

Obituary.

DOUGLAS DOUGLAS-CRAWFORD, M B, C M EDIN, F R C S ENG

AT the age of 60 Mr Douglas Crawford died suddenly at Liverpool on Feb 7th An active man, he had just been granted an extension of his term of office as senior surgeon to the Royal Southern Hospital, and the medical profession in Liverpool will greatly regret his unexpected death He was born and brought up in Liverpool being the son of a doctor who practised there, but he received his medical training in Edinburgh After graduating in 1887 he became a Fellow of the Royal College of Surgeons of England in 1894 meantime spending useful years in study at Dundee, where he was demonstrator in anatomy, and at Berlin, Vienna, and University College, London Thus equipped he came back to Liverpool and started work as a general practitioner, but almost at once devoted his attention to purely surgical work, and was soon elected to the staff of the Stanley Hospital In 1910 he became full surgeon to the Royal Southern Hospital and for nearly three years before his death he was the senior member of its surgical staff Much of his energy was, however, given at one time and another to the Liverpool Dental Hospital and to teaching in the University, in which for many years he was ex-officio lecturer in clinical surgery His instruction made a special appeal to dental students amongst whom his reputation was great He also took an active part in the deliberations of the Faculty of Medicine, where his service on committees and his administrative tact were of great assistance Engaged as he was in a busy practice and in work outside it, Mr Douglas-Crawford did not find time to do much medical writing but he contributed a number of articles to Liverpool journals on chronic prostatitis, on the mechanism by which volvulus is produced, and on other subjects In his own city, however, he is not remembered so much for this side of his activities as for his cheery, breezy personality He often helped his students when they needed help, and he put the interests of his patients before his own

The Council of the University have passed a resolution recognising with gratitude the valuable services which he rendered during 33 years of association with the medical school Memorial services were held at the Royal Southern Hospital and at the Cathedral and the funeral on Feb 10th was attended by several hundred mourners Mr Douglas-Crawford leaves a widow, but no family

FRANCES ELIZABETH HOGGAN, M D ZURICH, M R C P IREL

THE death of Mrs Frances Hoggan, née Morgan, on Feb 9th removes a pioneer among medical women, for Mrs Hoggan was born in 1843 and qualified M D Zurich in 1870, six years before the passing of the Medical Qualifications Act, which threw open the medical profession in England to women She studied also in Prague and Vienna and in 1877 became licentiate and licentiate in midwifery of the King's and Queen's College of Physicians of Ireland in 1877 gaining Membership of the College in 1880 Mrs Hoggan was the third medical woman to practise in London, her predecessors being Miss E Blackwell and Mrs Elizabeth Garrett Anderson, and was physician with Mrs Garrett Anderson to the first hospital in London to be officered by women This hospital began in Crawford-street as St Mary's Dispensary in 1866 and in 1872 developed into the New Hospital for Women with ten beds Most of Mrs Hoggan's contributions to medical literature were made in the 'seventies and included papers in the scientific journals of Italy, France and Germany She wrote on the pathology and therapeutics of membranous dysmenorrhœa in the *Archiv fur Gynacol* in 1876 and several neurological articles, her

BIRKENHEAD AND WIRRAL CHILDREN'S HOSPITAL —Mr and Mrs F Kroyer Kielberg have given Athelstone, their residence at Noctorum, as a convalescent home in connexion with this institution, together with a sum of money for adaptation The home will hold from 30 to 35 children

SKIMMED MILK —The Liverpool Health Committee has asked the medical officer of health and the city analyst to report on condensed skimmed milk imported from the United States It is not allowed to be sold in the United States, but export is allowed to this country The tins bear the notice "Not fit for babies" There is it was stated, a danger that some mothers, for the sake of cheapness, will give it to their children

THE LATE DR C J HARRISON —The death of Dr Charles Joseph Harrison, of Chelsea, occurred on Feb 7th after a rapid illness due to influenza Dr Harrison studied medicine at University College and graduated M B Lond in 1892, proceeding to the M D degree two years later After holding the post of house surgeon at the Victoria Hospital for Children he settled in Chelsea, where he had been in practice for 33 years at the time of his death During the war he acted as surgeon to the Fulham Military Hospital

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY. The President of the year (Dr Gustave Monod) and Council are inviting members and their friends to a conversazione at the rooms of the Medical Society of London on Thursday, March 30th, 8 45 to 11 P M Representatives from France, Germany, Italy, Holland, Belgium, and Czecho-Slovakia have accepted invitations A film showing the annual meeting of the society in Czecho-Slovakia last year will be exhibited and a demonstration will be given of the life-history of silica, showing the effects of hydration and dehydration, and the birth, life, and death of the opal The director of the Wellcome Medical and Historical Museum is lending exhibits to illustrate the history of medical hydrology Members of the medical profession who would like to attend are invited to communicate with Miss Fox, I S M H., 139, Marylebone-road, N W 1

HUNTERIAN SOCIETY —The Hunterian Oration will be delivered at the Cutlers' Hall, Warwick-lane, London, at 9 P.M. on Monday, Feb 28th, by Mr W Girling Ball, on The Value of Modern Methods of Investigation in the Diagnosis and Treatment of Hæmaturia —The annual dinner was held on Feb 10th at the Hotel Victoria The President, Mr A E Mortimer Woolf, took the chair and about 250 Fellows and guests were present, including the Lord Chief Justice and the Lord Mayor and Lady Mayoress of London. The toast of The Hunterian Society was proposed by the Lord Chief Justice, and the President briefly and wittily responded Mr J E H Roberts proposed The Guests, the reply being divided between Sir Francis Newbolt (England), Mr Hugh Edwards, M P. (Wales), and Dr H C Cameron (Scotland) The musical part of the programme was given by Mrs Westerman and Mr J Batten The proceedings ended with a hearty vote of thanks to the two honorary secretaries

R.A.M C SCHOLARSHIPS AT CHELTENHAM COLLEGE Six years ago the Aldershot R A M C Fund Committee endowed four scholarships one to be competed for annually at Cheltenham College The Foundation is for the benefit of the sons of all officers of the R A.M C The first two scholars who entered Cheltenham under this scheme have just left, having taken fifth and sixth places respectively on the Woolwich and Sandhurst lists of December last Both boys have been awarded prize cadetships into those institutions on account of their high positions on the lists It is not generally known that the sons of all medical officers—Regular, Special Reserve, Territorial and Temporary—who died of wounds or disease during the Great War are primarily eligible to compete for these scholarships, and that in default of candidates under this category, the sons of all living medical officers serving or retired come within the scope of this Foundation In the event of any boy falling short of scholarship standard money grants are sanctioned in suitable cases, and there are several boys receiving these benefits at the College now The value of the scholarships is approximately £50 per annum tenable for four to five years, a purely classical or modern education being given at the desire of the parents or guardians

Messrs Kelvin, Bottomley, and Baird, who manufacture the K B B apparatus for ultra-violet light therapy, have opened new showrooms at Imperial House Regent-street, London, W 1

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Poor-law Consolidation

IN the House of Lords, on Wednesday, Feb 9th, a Government measure consolidating enactments relating to the relief of the poor was introduced and read a first time

New Bills

In the House of Lords on Tuesday, Feb 15th, Viscount ASTOR presented the Education (Employment of Children and Young Persons) Bill, and the Bastardy Bill, both of which were read a first time

Private Members' Bills

Among the Bills presented by private Members in the House of Commons on Friday, Feb 11th, were the following —

Mr WOOD To amend certain enactments relating to mental defectives —Mr RUSSELL To secure the registration of optical practitioners and to regulate the practice of sight-testing and for purposes incidental thereto —Mr TINKER To consolidate with amendments the enactments relating to factories and for purposes connected therewith —Mrs PHILIPSON To provide for the registration and inspection of nursing homes and for purposes connected therewith —Mr BARCLAY-HARVEY To amend the Midwives (Scotland) Act, 1915, and to provide for the registration and inspection of maternity homes and for purposes connected therewith —Sir H LUCAS-TOOTH To extend maternity benefits in cases of miscarriage and for purposes connected therewith

Vivisection of Dogs

In the House of Commons on Monday, Feb 14th, Sir R GOWER presented a Bill to prohibit the vivisection of dogs

Workmen's Compensation

On the same date Mr F HALL presented a Bill to amend the law relating to workmen's compensation

HOUSE OF COMMONS

THURSDAY, FEB 10TH

Government and Spahlinger Treatment

Sir CHARLES CAYZER asked the Minister of Health whether his department was at present in communication with Mr Spahlinger in regard to his treatment, and, if so whether he would state the present position of any such negotiations —Mr N CHAMBERLAIN replied I am not, at present, in communication with Mr Spahlinger, but it has been publicly stated on my behalf that the offer made to him to arrange for a scientific investigation in this country of his method of treatment as soon as the necessary materials are forthcoming, is still open

Approved Societies and Dental Fees

Sir THOMAS DAVIES asked the Minister of Health whether he was aware that the majority of approved societies, embracing over 90 per cent of the population entitled to dental benefit under the National Health Insurance Act had accepted the new scale of fees for dental service under that Act, which scale was negotiated and agreed between representative men in approved society organisations and representative men in dental professional organisations and whether, in these circumstances, he would take such steps as might be necessary to secure that insured persons who were members of the few approved societies whose officials were opposing such agreed scale should not be deprived of dental benefit through a refusal by such officials to consider estimates based by dentists upon such scale or through inability on the part of the member to find a dentist willing to do work at lower fees than those so agreed —Mr N CHAMBERLAIN replied The position with regard to the new scale of fees for dental service is as stated by the hon Member As regards the latter part of the question I could not regard it as satisfactory that any approved society which has included dental benefit in its scheme of additional benefits should make such arrangements as resulted in its insured members being unable to obtain satisfactory dental treatment with reasonable freedom of choice of dentist and I shall not hesitate to take the necessary steps to deal with any such case that may be brought to my notice

Housing Statistics

Mr HANNON asked the Minister of Health whether he had statistics available showing the number of houses erected under the Housing Acts in the years 1924, 1925, Mr H Edgar Smithers announces that he is compiling a directory entitled "Who's Who in the Nursing World" Further information may be had from him at 139, High Holborn, London, W C 1

THE Cambridge University Press will publish early next month a book by Dr Bernard Hart entitled "Psychopathology Its Development and its Place in Medicine" Most of this book is taken up by the Goulstonian Lectures delivered before the Royal College of Physicians in 1926 (THE LANCET, 1926, i, 585 and 700) Dr Hart describes the development of psychopathology and critically reviews the chief tenets of the various schools

MEDICO-LEGAL SOCIETY—An ordinary meeting of this society will be held at 11, Chandos-street, Cavendish-square, London, W 1, on Thursday, Feb 24th, at 8 30 P M, when a paper will be read by Dr F J McCann on Some Cases of Medico-legal Interest in the Practice of Gynæcology A discussion will follow Members may introduce guests on production of a member's private card

ROYAL SANITARY INSTITUTE—The Henry Saxon Snell Prize will in 1927 consist of 50 guineas and the medal of the institute, and is offered for an essay on Sanitary Accommodation, Appliances and Fittings for Hotels and Flats, with suggestions as to proper placing, arrangement, ventilation and lighting, particularly where there are no external walls in which windows can be placed Details may be had from the Secretary of the institute 90, Buckingham Palace-road, London, S W 1

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX—At a meeting to be held at the Royal Institute of British Architects on Feb 23rd Mr G F Barwick will speak on the compilation of a directory of sources of specialised information which has been going on under his direction for eight months Cards of invitation can be had from the Secretary of the Association 38, Bloomsbury-square, London, W C 1

LIVERPOOL POST-GRADUATE COURSE IN CARDIOLOGY

A special two weeks' post-graduate course will be given at the Liverpool and District Hospital for Diseases of the Heart from March 7th Early application should be sent to Prof J M Beattie at the hospital, entry being limited to 20

RETIREMENT OF IRISH MEDICAL OFFICIAL—The retirement is announced of Dr C J MacCormack, who has been for many years medical member of the General Prisons Board of Ireland and Inspector of Reformatory and Industrial Schools Before his appointment to the Prisons Board Dr MacCormack was for some years a medical inspector of the Local Government Board, he had previously practised in Athlone His colleagues and the office staff of the Prisons Board met last week to make him a presentation on his retirement

STERILISATION OF DEFECTIVES—The Surrey County Council recently appointed a subcommittee to consider a resolution passed by the Worcestershire County Council urging the Government to take compulsory measures for preventing the spread of mental deficiency, by sterilisation, by compulsory segregation, or by other measures The subcommittee has reported that the weight of available evidence is to the effect that, apart from certain cases due to acquired injury or disease of the brain, heredity is probably the biggest factor in the causation of mental defect, but although the defect often occurs in the child of a defective parent, a defective is more often the child of a parent who has transmitted an ancestral strain of tainted stock without personal signs of mental abnormality An analysis of family histories of 500 recent consecutive cases in Surrey shows that in only 25 per cent was one parent in any way abnormal mentally, and in four cases only—i e, 0 08 per cent—were both parents defective (some of these, perhaps, not being certifiable under the Act) It would appear that if every defective now existing were to be sterilised, says the subcommittee's report, the result a generation hence would be insignificant "It is generally recognised," the report goes on, "that sterilisation does not materially affect moral propensities which have already been acquired, and a sense of security might even lead to increased dissemination of venereal disease It is important to remember that cases which are subject to be dealt with under the Act mostly require segregation (which would equally prevent procreation) because of failure to be self-supporting or some other antisocial factor which would not be remedied by sterilisation, and institutional training and care would still be required for such cases" The Surrey County Council, having received this report, has decided not to ask the Government to promote legislation for the sterilisation of defectives

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN—The out-patient department of this hospital is described as "deplorable, cramped, and dilapidated," and a new one will cost £65,000, towards which King Edward's Fund has promised £3250

DINNER TO DR LILY BAKER—A dinner has been given at Bristol to celebrate the appointment of Miss Lily Baker to the honorary staff of Bristol Royal Infirmary Except at the Royal Free Hospital this is the first time that a medical woman has been made a member of the full staff of a general teaching hospital in the British Isles Dr Baker is in charge of the antenatal department

FIRST-AID AND THE WIRELESS—The Dublin Broadcasting Station has included in its programme in recent weeks a series of lectures on first-aid and ambulance work An inaugural lecture, describing the work of the St John Ambulance Brigade, was delivered by Sir John Lumsden, M D, Commissioner for Ireland, and has been followed week by week by lectures from other teachers. Each lecture lasts 15 minutes

ST ANDREW'S HOSPITAL, DOLLIS HILL—It is stated that the want of accommodation at this hospital has become a serious problem, and that £30,000 is required at once for the provision of additional beds, the opening of a children's ward, and a home for the nurses and staff The sum of £4600 has so far been contributed The hospital was opened in 1913 for the professional and middle classes, and although contributions are asked from patients who can afford it, no patient has been refused solely on the ground that he could not pay a fee

LONDON ASSOCIATION OF MEDICAL WOMEN—At a meeting held on Jan 25th, the President, Miss Elizabeth Bolton, in the chair, Dr Margaret Dobbie-Bateman gave an address on Some Aspects of Industrial Medicine She discussed industrial medicine chiefly as it applied a particular organisation of medical practice to meet a particular social service Factory medical officers, she pointed out, must be distinguished from certifying surgeons The latter were invested with certain statutory powers and were required to fulfil certain statutory duties, whereas the factory medical officers were the officials of the industrial organisations in which they worked, their powers being purely advisory Their business, from the staff managerial point of view, was (1) to prevent the engagement of people unable by reason of physical disability to do the work required of them, (2) to prevent absence of workers and, therefore, loss of work—through sickness and (3) to prevent loss of work through lowered physical efficiency of employees at work Restated from the point of view of the workers—and on this restatement Dr Dobbie-Bateman laid great stress—the medical officer's duty was to restrain people from undertaking work they were unable to do and to keep them in a full and happy capacity at work The first aim was met by a preliminary medical examination of candidates for employment Between those completely fit and those totally unfit was a large class whose applications had to be considered Standards of fitness for employment in industry need not be as rigid as standards for acceptance in the army It was a pity that anyone should be excluded from helping to produce if he was likely to be able to do so It was often possible to allocate suitable work to a candidate who would not be capable of work in certain departments, or to recommend treatment after which the candidate became fit for any work A knowledge of the industrial processes was, therefore, necessary to the medical officer Unfortunately, certain people still had an objection to a compulsory medical examination, and Dr Dobbie-Bateman was now trying the experiment of a voluntary medical examination for applicants over the age of 16, though for younger people she was convinced that compulsory examination was necessary in their own interests For the prevention of absenteeism it was essential (1) to examine the staff returning from sick leave, if possible before they rejoined their departments, and (2) to rule that the only pass-out given to workers leaving their posts for reasons of health should be given by the medical officer The first rule prevented people from returning to work before they were fit, whilst the knowledge that a visit had to be paid to a medical officer acted as a deterrent to those whose headaches tended to occur on the Tuesday after Bank Holiday The industrial medical officer was also called on for first aid, for advice as to lighting, heating, and ventilation, for the determination of optimum periods of rest, and for the superintendence of canteen arrangements There was urgent need of a dental scheme in connexion with industrial medicine and an ophthalmological service would also be of value Finally, research into industrial dermatitis and industrial fatigue should be actively pursued best use of the staff at its disposal , and I cannot see my way to interfere with the Governor's exercise and his discretion in a matter of this kind

Education of Physically Defective Children

Major Hills asked the President of the Board of Education what was being done by the Board for the education of children of school age who were suffering from more than one defect , what was the number of such children of the various types of double or triple defect in England and Wales , and, as these children were found in small numbers all over the country and were not numerous in any particular area, could any steps be taken for the formation of a joint committee of the local education authorities for large areas to provide suitable institutions for the instruction of such children —The Duchess of Atholl replied This matter is receiving careful consideration My right hon friend has been furnished with certain particulars regarding the education and care of children of this type, but he is afraid that complete statistics are not available In so far as the children are mentally defective they fall within the purview of the special committee which is now investigating the question of the provision which should be made for mentally defective children, and my right hon friend is not at present in a position to make a statement on the subject

Lead Poisoning in the Potteries

Major Hills asked the Home Secretary how many cases of lead poisoning in the potteries occurred in factories using low-solubility glazes since the regulations of 1913, which gave special exemption to such factories —Sir W Joynson-Hicks replied During the 11 years 1916–26, there were 67 such cases out of a total of 351, but in 60 of these there had been previous employment, often for many years, in factories using raw lead glazes I am glad to tell my hon friend that the incidence of lead poisoning in potteries of this class is to be the subject of a special investigation by one of the medical inspectors, and the investigation will be proceeded with at an early date

Public Expenditure on Medical Treatment

Mr Robert Morrison asked the Minister of Health if he would state the expenditure for each year from 1923 upon provision and treatment for tuberculosis maternity and child welfare, venereal disease, and welfare of the blind respectively —Mr Chamberlain replied It is presumed that the question relates to expenditure out of moneys provided by Parliament The amounts of such expenditure in England and Wales for the financial years 1923–24 to 1925–26 in respect of the services mentioned in the question were as follows —

—	1923–24	1924–25	1925–26
	£	£	£
Maternity and child welfare	791,000	814,000	897,000
Treatment of tuberculosis	1,337,000	1,430,000	1,547,000
Grants towards provision of sanatoria	87,000	15,000	19 000
Treatment of venereal diseases	303 000	298,000	307,000
Welfare of the blind	83,000	95,000	104,000

Tuesday, Feb 15th

Use of Poisons and Bacteria in War

Mr James Hudson asked the Prime Minister whether, in view of the recommendation of the League of Nations Disarmament Commission, that all subsidies, both to private and official laboratories promoting research in poison gases, be abolished, the British Government was prepared to give a lead in this matter and whether the Government was prepared, in accordance with the further recommendation of the same commission, to introduce legislation forbidding any one, civilian or military, to perform exercises in the use of poisons and bacteria —Mr Baldwin replied Until such time as a definite assurance can be obtained that all Powers are willing to adopt measures of prohibition in regard to poisons and bacteria, His Majesty's Government must take steps to be in a position to defend itself against such attacks In regard to the second part of the question, so long as our nationals might be exposed to attacks of this nature, it is the bounden duty of His Majesty's Government to take steps to provide protection for them

Deaths from Tetanus in London Hospitals

Mr Day asked the Minister of Health the number of persons who had died in London hospitals as the result of lockjaw following dog-bites during 12 months to the last convenient date.—Sir Kingsley Wood replied No deaths certified as due to tetanus following dog-bites took place in any London hospital during 1925 No subsequent figures are as yet available

Grade A Milk Licences

Mr Wells asked the Minister of Health if he would reconsider the charges at present made for licences, as set out in the Fourth Schedule of the Milk and Dairies Order, 1923, with a view to their reduction, and so assist those agriculturists desirous of providing the public with milk of Grade A quality —Sir Kingsley Wood replied · The charges made by local authorities for Grade A milk licences are designed to cover the cost of supervision and bacteriological examination, and, on the information at present before him, my right hon friend does not consider that they could properly be reduced

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 5TH, 1927

Notifications —The following cases of infectious disease were notified during the week : Small-pox 547 (last week 532); scarlet fever, 1287 ; diphtheria, 988 ; enteric fever, 32 , pneumonia, 3198 (last week 2618); puerperal fever, 36 ; puerperal pyrexia, 130 , cerebrospinal fever, 17 , acute poliomyelitis, 13 ; acute polioencephalitis, 3 ; encephalitis lethargica, 49 ; dysentery, 16 ; ophthalmia neonatorum, 131 There was no case of cholera, plague, or typhus fever notified during the week

One case of small-pox was notified from Portsmouth C B , one further case from Stockport C B , and none from Essex. The remaining cases were distributed, as last week, amongst the following counties · Derbyshire 20, Durham 340, Lancashire 4, Northumberland 12, Nottinghamshire 1, Yorkshire 168

Deaths —In the aggregate of great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 43 (1) from measles, 11 (5) from scarlet fever, 89 (26) from whooping-cough, 51 (12) from diphtheria, 42 (9) from diarrhœa and enteritis under 2 years, and 818 (215) from influenza The figures in parentheses are those for London itself The influenza deaths for the last six weeks have thus been 86, 173, 326, 470 725, and 818, while 759 is the figure notified for the week ending Feb 12th, the deaths in London being 159

DONATIONS AND BEQUESTS

Under the will of the late Mr Robert Allison, J P , of Paisley, subject to his wife's life interest, the testator left among other bequests, £2000 to the Orphan Homes of Scotland and Consumptive Sanatorium, Bridge of Weir , £1000 each to the Paisley Eye Infirmary, the Glasgow Eye Infirmary, the Royal Glasgow Asylum for the Blind, the Glasgow Deaf and Dumb Institution, the Glasgow Samaritan Hospital for Women, the Glasgow Cancer Hospital, the Royal Hospital for Sick Children , £500 each to the Paisley and District Mission to the Deaf and Dumb, the Glasgow Hospital and Dispensary for Diseases of the Ear, the Glasgow Hospital for Skin Diseases the Mission to the Outdoor Blind for Glasgow and the West of Scotland, the West of Scotland Convalescent Homes, Dunoon, and the East Park Home for Infirm Children —Mrs Blanche Murray, of Manchester-square, W , and Taigmount, Stanley, Perth, left £5000 to the Perth Royal Infirmary, to endow a bed in memory of her husband, if not already given by her or her children.—The Royal Manchester Children's Hospital, Pendlebury has received £1000 from the executors of the late Miss Mary Scott Monat to endow a cot, £350 from the Manchester Civic Week Executive Committee, and £170 from the sale of silver paper —Mr William Wright, Kirkcaldy Fife, left besides other bequests £1000 to Kirkcaldy Hospital, and £500 each to several institutions including the Queen Victoria Nursing Association Kirkcaldy —Dr Patrick John Smith Nicoll, M D , J P , of Stratford, London, E , left £5000 upon trust for the provision of a maternity home for the poor of Rhynie, Aberdeenshire, and district, £5000 (part of which for the endowment of a bed) to Queen Mary's Hospital for the East End —Mr Bernhard Baron has given £10 000 to the Royal Westminster Ophthalmic Hospital for the building fund —Mrs Annie Jane Raine Sandsend near Whitby late of Sunderland left £2000 to the Greenbank Hospital, Darlington, for the endowment of two beds in memory of her husband and herself, and £1000 to the New Whitby War Memorial Hospital —By will the late Mr.

and 1926, and also the numbers which had been erected in the same years without subsidy —Mr N CHAMBERLAIN replied The following table gives the information desired by the hon Member —

Year	Number of houses erected—		
	With subsidy under the Housing Acts during the year ended in—		Without subsidy during the year ended in September
	December	September	
1924	52,730	36,459	73,032
1925	99,497	92,291	66,735
1926	144,619	131,895	65,689

Condemned Houses

Mr. ALBERY asked the Minister of Health how many condemned houses in England, Scotland, and Wales were occupied in December, 1924, and in December, 1926 —Mr N. CHAMBERLAIN replied Statistics are not available for England and Wales giving the information desired by the hon Member According to the annual reports of medical officers of health 12,722 houses were reported during the year 1924 as unfit for human habitation Similar information for 1926 is not yet available As regards Scotland I would suggest that a similar question should be addressed to the Secretary of State

Cost of Pauper Lunatics

Mr DENNISON asked the Minister of Health the average weekly cost per head of a pauper lunatic and an indoor pauper for the last two complete years ending March 31st —Mr N CHAMBERLAIN replied It is estimated that, excluding the cost of buildings and loan charges, which on the average may be put at between 6*s* and 7*s* per week, the average weekly cost per head of persons maintained in institutions for lunatics at the cost of the guardians was, for the year ended March 31st, 1924, 22*s* 2¾*d*, and, for the year ended March 31st, 1925, 21*s* 3¼*d* The average weekly cost of a person maintained in a Poor-law institution in England and Wales, including the cost of buildings and loan charges was 25*s* 5*d* for the year 1923–24, and 27*s* 1½*d*. for the year 1924–25

The Purity of Imported Milk

Lieut -Col ACLAND-TROYTE asked the Minister of Health what steps he was taking to ensure that milk imported from foreign countries was produced under conditions as good as those laid down in the Milk and Dairies Order, and how he proposed to protect the public against imported milk which was not produced under proper conditions —Mr CHAMBERLAIN replied The Public Health (Imported Milk) Regulations, which I made at the same time as the Milk and Dairies Order, require all milk imported from foreign countries to be in such a condition that on a sample being taken it shall be found to contain not more than 100,000 bacteria per cubic centimetre and to be free from tubercle bacilli The Regulations are enforced by means of a requirement that an importer must be registered with the port or riparian sanitary authority and may be struck off the register if he imports milk which does not comply with the provisions of the Regulations I may perhaps add that the amount of milk which is imported into England and Wales is practically negligible

Pensioners and Reopening of War Wounds

Mr ROBINSON asked the Minister of Pensions if he would take the necessary action to enable men who were suffering from wounds inflicted in the great war to claim pension should the wound break down or reopen after the expiry of seven years from the termination of active service in the war —Major TRYON replied I would refer the hon Member to the reply which I gave on Feb 11th, 1926, in which I stated that in the case of an old wound which has broken down more than seven years after discharge, and required surgical treatment, I had issued instructions that immediate steps should be taken to provide such treatment The experience of the past year shows that such cases are, for the most part, restored by treatment, but if in any such case the man is found after treatment to be seriously incapacitated consideration is given to the making of an appropriate grant

Rehousing of Tenants of Condemned Houses

Mr ALBERY asked the Minister of Health if he would impress on local authorities the desirability of utilising the 1924 Building Act primarily to rehouse those living in condemned houses, and if he was aware that this was not being generally done —Mr CHAMBERLAIN replied I have already, in a circular recently issued to local authorities, urged them to devote themselves specially to the provision of the type of houses capable of being let at rents within the means of the less well-paid workers I do not think it is practicable for local authorities in letting new houses to limit themselves in the first instance to the class to which my hon friend refers, but I believe it is the general practice to give weight to the claims of those living in condemned houses

FRIDAY, FEB 11TH

Rating Reform

Mr FENBY, on behalf of the Liberal Party, moved the following amendment to the Address in reply to the Gracious Speech from the Throne —

> "But this House deplores that the Government do not propose to bring forward measures for the relief of the local rates, by which expenditure in many districts has risen to almost unbearable dimensions, and which now so impedes the revival of our industrial and agricultural prosperity, and for the reduction of rating on improvements by placing a fair share of the burden upon the monopoly values in the urban districts which have been created by these communities"

The burden of the rates was, he said, shown by the fact that while in 1900 the amount of rates per head of the population per annum was £1 6*s* 11*d*, it was £1 15*s* 4*d* in 1910, £1 19*s* 6*d* in 1915, £2 16*s* 4*d*. in 1920, and £3 14*s* 7½*d* in 1924 He hoped that the Minister of Health would give the House a definite promise that he was prepared to frame legislation to deal with this pressing evil

Mr G THORNE seconded the amendment

Mr NEVILLE CHAMBERLAIN (Minister of Health) said it was generally agreed that the burden of rates in the urban districts was increasing, and was weighing very heavily on industry, but he failed to see how that was going to be remedied by the amendment What was really wanted in his view was a new arrangement of national and local taxation, one which would have the effect of spreading over the national area some part of the burden which was now directly concentrated unduly on local spots There must be three stages if they were to deal with it on sound and permanent lines Seeing that an essential feature was capacity to pay, the first necessity was that they should have some sort of uniformity of valuation throughout the country The Government had taken the first step in passing the Rating and Valuation Act The second step, he believed, was to be found in the concentration of financial control in any area in one authority The reform of the Poor-law system under which this concentration took place and under which one authority would be able to keep under its own control and within its own purview the whole financial aspect of public expenditure in that area, was the second step The third step to follow on, or it might even be to accompany it, would consist in the actual formula for the adjustment of the relations between national and local expenditure It was possible, now that the announcement had been made of the Government's hopes to introduce a new measure of Poor-law reform in the autumn, to speak with greater precision on this matter than he had done previously He did not say that it would be possible between now and the autumn to define the financial arrangements which would cover the whole field of service, and which would be satisfactory to all concerned What he did say, however, was that they would spend the intervening time in exploring still further ideas to which they had already given prolonged consideration They would consult the local authorities concerned on their proposals, and if and when they were able to produce a complete scheme he thought they would have advanced towards solving the problem of the necessitous areas which had troubled and baffled so many Governments in the past

After further debate,

The amendment was defeated by 244 votes to 88—majority against, 156

MONDAY, FEB 14TH

Medical Service in Gold Coast Colony

Sir COOPER RAWSON asked the Secretary of State for the Colonies (1) from what date it was proposed to appoint a native doctor to succeed a European doctor at Dunkwa, Gold Coast Colony, where there were over 40 European residents, including women, and, seeing that the nearest European doctors to Dunkwa were at Sekondi and Kumasi 6½ and 1½ hours away respectively, with only one train a day in each case, would he appoint a European doctor at Dunkwa, and (2) whether, seeing that a European doctor had been put in charge of a native hospital at Elmina, he would say why he or some other European doctor should not be appointed to Dunkwa —Mr AMERY replied It is the policy of His Majesty's Government that natives of West Africa who are qualified medical men and otherwise suitable for public employment should be employed in the Government service in West Africa Three African medical officers are employed in the Gold Coast out of a total medical staff of 67 My hon friend will of course understand that it must rest with the Colonial Government to make the

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, *Leicester-square, W.C.*

TUESDAY, Feb 22nd —5 P M , Dr G B Dowling Seborrhœa Seborrhœic Dermatitis

THURSDAY —5 P.M , Dr Haldin-Davis Pruritus, Prurigo, Lichenification

ST JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY (Incorporating the London Dermatological Society)

WEDNESDAY, Feb 23rd —4 15 P M (at St John s Hospital, 49, Leicester-square W C 2) Clinical cases will be shown and a paper will be read by Dr Nicoll on Parasitic Worms in Affections of the Skin Photographs taken at Leysin (by kind permission of Dr Rollier) will also be shown

CENTRAL LONDON THROAT NOSE AND EAR HOSPITAL, Gray s Inn-road, W C

FRIDAY, Feb 25th —4 P.M , Mr C Gill-Carey Bronchoscopy and Œsophagoscopy

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

MONDAY, Feb 21st —6 P M (at the Medical Society of London, 11 Chandos-street W), Dr F Vincent Denne Teeth

ST MARY'S HOSPITALS MANCHESTER

FRIDAY, Feb 25th —4 30 P M. Post-graduate lecture (at the Whitworth-street West Branch), Dr C P Lapage Poliomyelitis (Polioencephalitis) in Children

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb-street, Whitworth Park, Manchester

WEDNESDAY, Feb 23rd —4 15 P M Mr A C Magian Uterine Prolapse and Its Treatment—Operative and Non-operative

UNIVERSITY OF SHEFFIELD POST GRADUATE CLINICS

FRIDAY, Feb 25th —3 30 P M (at the Royal Hospital), Mr P J Hay . Ophthalmic Clinic

Appointments.

FERGUSON, J. B , M D Edin D P H , has been appointed Medical Superintendent of the Tuberculosis Division of the Government of Victoria, Australia

HILL, K P , M.D Lond., D O M.S , Honorary Ophthalmic Surgeon to the Kent County Ophthalmic Hospital, Maidstone

MITCHELL, H A M B Toronto, Pathologist to the Warrington Infirmary and Dispensary

VERRALL, P. J , M B , Ch B Camb F R C S Eng , Orthopædic Surgeon to the Royal Free Hospital.

St Thomas's Hospital HOPE GILL, C W M.B , B Ch Oxf , WILES, L A F, M.R C.S, L R C P WILLIAMS P LLOYD M R C.S , L R C.P Lond , L D S , MARRINER H L, F R C S Edin , NICHOLSON H W , M.B , B Ch Camb , COX H T , M R C S , L R C P. Lond , FARMER, A P M.R.C S , L R.C P Lond NEILSON, D F A., F R.C.S Eng WALFORD, A S H M.B , B Ch Camb , F R.C S Eng , PARKER G E , M B B Ch Camb , PURVIS, W P , M R C S L R C P Lond BARRON, H T , M D Lond., MACKENNA, R M B , M R.C S , L R C P Lond., ARCHER, E C , M B B S Lond. ADDISON G M , M.R C.S L P C P Lond NICORY C , M R C S L R C P Lond. BABINGTON G C M R C.S L R C.P. Lond , BOWEN, H W , M R.C S , L R.C P Lond , CAROTHERS, J C D M.R C S , L R.C P Lond , GOADBY H K , M.R C.S , L R.C P Lond., SHIRES B M.B , B Ch Edin , RICKMAN, J , M.D Camb , COOPER, G K , M.B , B Ch Camb , GEORGE, J B M.R.C S , L R.C P Lond., PHILLIPS R A , M.R C S L.R.C P Lond , WALTON L H F , M R.C S L R C.P, Lond. BROCKMAN, E. P , M B , M.Ch Camb MORRIS J , M.B , B Ch Camb PURCELL F W F , M.R.C S L R.C P , Lond , TUCKETT C I , M R C.S L R.C P Lond , HENRY, G R N M R.C.S L R C P Lond , MILLER A K M R C.S , L.R.C P Lond , ROWAN G E L.M.S.S.A , M R C.S , L.R C P Lond FITZGIBBON G M M R C.S , L R C P., Lond DAVIES T E M B , B Ch Wales, TONKING H D , M R.C.S , L R C.P Lond BURROWS S. M M.R C S , L R.C P. Lond , ASHTON J M , M R.C.S L R C P Lond WRIGHT, E. M M.B B Ch Oxf , Chief Assistants and Clinical Assistants

Vacancies.

For further information refer to the advertisement columns

Ashton-under-Lyne Union —Res Asst. M O £250

Barry Urban District Council Accident and Surgical Hospital —S £750

Birmingham University —*Professor of Physiology* £1000

Bristol Mental Hospital —Second Asst M O £400

Bristol Royal Infirmary —H P s , H.S s Dental H S , &c. Each at rate of £80

Durham County Council —Asst Welfare M O £600

East Riding Mental Hospital Beverley —Med Supt £900

Elizabeth Garrett Anderson Hospital Euston road N W —Asst Path. At rate of £150 Also Asst Phys Mechano therapeutic Dept. £100 Also Hon P to Children s Dept

Evelina Hospital for Children Southwark —H P. At rate of £120

Holland (Lincs) County Council —Asst M O H £600

Hull City Education Committee —Asst Sch M O £600

Lancashire County Council —Asst County M O 's £800

Lancashire County Mental Hospital Winwick, Warrington —Asst M.O. £350.

Leeds City Tuberculosis Sanatorium Killingbeck —Asst Res M O £250

Leicester Royal Infirmary —H S and H P At rate of £125 and £120 respectively

Leicestershire County Council —Asst County M O £750

Liverpool Open-air Hospital for Children Leasowe —Jun. M.O £200

London Hospital, E —First Asst and Reg £300

Manchester, Ancoats Hospital —Hon Phys

Manchester Royal Children's Hospital Gartside-street —Asst M O At rate of £150 Also Res Surg O At rate of £80

National Hospital Queen-square W C —Res M O £200

Newcastle-upon-Tyne Northumberland Durham and Newcastle Eye Infirmary for Diseases of the Eye —Hon Surg

Newcastle-upon-Tyne, Wooley Sanatorium near Hexham —Asst M O £350

Nottingham General Hospital —H P At rate of £150

Queen s Hospital for Children Hackney road E —Res M O £200

Royal Free Hospital, Gray's Inn-road, W C —H P to Children s Dept

Royal National Orthopædic Hospital, 234 Great Portland street, W —H S At rate of £150

Royal Westminster Ophthalmic Hospital King William-street W C —Asst H S

St Mary's Hospital for Women and Children, Plaistow, E —Hon Asst Surg

St Thomas s Hospital —Res Asst P Also Med Reg

Smethwick County Borough —Asst M.O H and School M O £600

South Shields County Borough —Venereal Dis M O £750

Stoke-on-Trent City of —M O H £1400

Surrey, Redhill, Royal Earlswood Institution —Jun Asst M.O At rate of £250

Swansea County Borough —Asst M O £600

Sydney University New South Wales —Director of Cancer Research £2000

University College Hospital, Gower street, W C —Harker Smith Reg £250

Victoria Hospital for Children, Tite-street Chelsea, S W —Hon Anæsthetist

Watford Peace Memorial Hospital —Res M.O At rate of £150

West Bromwich County Borough —Asst M.O H £600

West London Hospital, Hammersmith-road W —H P and two H S 's Each at rate of £100 Also Hon Med Reg £100

Western Ophthalmic Hospital, Marylebone-road, N W —Sen. and Jun Non Res H S 's. At rate of £150 and £100 respectively

Westminster Hospital, S W —Second Asst M.O to X Ray and Electrical Dept

Westminster Hospital School of Medicine —Hon. Lecturer on Public Health

The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Allendale Northumberland.

Births, Marriages, and Deaths.

BIRTHS

DAY —On Feb 7th at Dacres-road Forest Hill, S E , the wife of Dr H B Day (late of Cairo), of a son

EAST —On Feb 7th at Ferncroft-avenue, Hampstead N W , the wife of Dr C F T East, of a daughter.

WHITE-COOPER —On Feb 11th at Montagu ' Dartmouth, Devon, the wife of W R. White-Cooper, M B , B.S Lond., of a daughter

MARRIAGES

HODGSON—ROUND —On Feb 9th at Old Edgbaston Church (by Rev J J Bell assisted by Canon Blofeld) Alfred Birkbeck Hodgson M B M R C P Lond younger son of late Canon Hodgson, of Aston and Mrs Hodgson of 86 Trinity road Birchfields to Margaret Anne, elder daughter of Mr and Mrs. Harold Round of ' Hill Crest, St James road Edgbaston At Home " Glencoe, Maney, Sutton Coldfield March 25th, 26th 27th

DEATHS

BEEVOR —On Feb 6th suddenly of heart failure, in London, Col Walter Beevor C B C M G , R A M C

FEGAN —On Feb 9th, in London Richard Fegan M D F R.C.P I late of Blackheath and Old Charlton, Kent, in his 88th year

GRANT —On Feb 10th at Queen s-gate S W Frederick Grant M D , M R C S

HARRISON —On Feb 7th at Swan walk Chelsea Charles Joseph Harrison M D

MACCARTHY MORROGH —On Feb 3rd at his residence Libra Lodge Cork Dr Alexander MacCarthy Morrogh M B , C M F R C S E , aged 62

N B —A fee of 7s 6d is charged for the insertion of Notices of Births Marriages and Deaths

Edward Clark, of Learmonth-terrace, Edinburgh, and Glenmuir, North Berwick, left, among other bequests, £10,000 to the Royal Infirmary, Edinburgh £10,000 to such institution in London as the trustees may select, £5000 for Red Cross purposes, and £1000 to the Edinburgh Sick Children's Hospital —Mr Henry Savile Jowett, of Huddersfield, chartered surveyor left £1000 to the Royal Halifax Infirmary for the endowment of a bed to be known as the "Savile Jowett Bed"—Mr Sidney Paige Adams, of Brookesby, Newton Abbot, who left £213,339, besides many other bequests, left £2000 each to the Royal Deaf and Dumb School, Exeter, the West of England Institution for the Blind and the Royal Devon and Exeter Hospital —Mr James Whitehead, retired contractor of Oldham, left £5000 to the Oldham Infirmary to endow two beds, £2000 each to the Oldham Corporation and the Urban District Council of Marsden for food, clothing, and similar articles for the poor at Christmas time, £1000 each to the Blackpool Hospital in recognition of the many services rendered to his workmen, and the Oldham Lyceum, and one-sixth of the residue of his estate to Oldham Royal Infirmary —Bequests in the will of Mr Edwin Samson Moore, J P, of York Lodge, Erdington, Birmingham, include £1250 each to Birmingham General Hospital, Jaffray Hospital, Birmingham, Queen's Hospital, Birmingham, Birmingham and Midland Skin and Urinary Hospital, Birmingham and Midland Hospital for Women, Birmingham Maternity Hospital, Birmingham and Midland Eye Hospital, and Birmingham and Midland Ear and Throat Hospital, £1000 each to Children's Hospital, Birmingham, Orthopædic and Spinal Hospital Birmingham, Taylor Memorial Hospital of Rest, Sparkhill, and Smedley Memorial Hospital, Matlock —Miss Sarah Emily Frances Payne, of Parkside, Knightsbridge, S W, left £1000 to the Children's Hospital, Carlton, Melbourne, £500 each to the Hospital for Sick Children, Great Ormond-street, the Queen's Fund, Melbourne, and six other charitable institutions —Mr William Birtwistle and Colonel Arthur Birtwistle have subscribed £2000 on behalf of five Blackburn and Darwen mills under their direction, to the appeal for funds to complete the Blackburn War Memorial Infirmary extension —The late Mr Walter Loraine Tapling, of Pucklechurch, Tadworth, Surrey, left among other bequests £1000 to the National Hospital, Queen-square, W C

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W

Monday, Feb 21st —8 30 P M, Social Evening Fellows, Members of Sections, and their friends will be received in the Library by the President and Lady Berry 9 30 P M, Mr Percy Flemming will give an address entitled Topographical and Medical Notes on Harley Street (with illustrations)

Tuesday —5 P M, Medicine Discussion on Migraine Opener Dr C P Symonds

Wednesday —5 P M, Comparative Medicine *Paper* Mr G P Male On Disease other than Tuberculosis Conveyable to Man by Milk

Thursday —8 P M, Urology *Paper* Mr Henry Wade The Treatment of Malignant Disease of the Bladder

Friday —8 30 P M, Study of Disease in Children and Medicine Special joint discussion on the Antitoxin Treatment of Scarlet Fever Openers Dr E W Goodall, Dr R. A O'Brien, and Dr F Foord Caiger 8 P M, Epidemiology and State Medicine *Paper* Dr N Howard Mummery The Organisation of an Industrial Clinic

MEDICAL SOCIETY OF LONDON, 11, Chandos street, Cavendish square, W

Monday, Feb 21st —9 P M, Mr Donald J Armour The Surgery of the Spinal Cord and Its Membranes (First Lettsomian lecture)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos street, Cavendish square, W

Friday, Feb 25th —8 30 P M Papers will be read by Capt F Doble and Dr A Cambell on Urethritis as seen through the Urethroscope, with demonstration of the instrument, and a discussion will follow.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, London, W C

Wednesday, Feb 23rd —8 P M, Ordinary meeting Mr Francis H Carr (President of the Society of Chemical Industry) Insulin and its Manufacture

THE MEDICO-LEGAL SOCIETY

Thursday, Feb 24th —8 30 P M (at 11, Chandos street, Cavendish-square, W) Dr F J McCann Some Cases of Medico Legal Interest in the Practice of Gynæcology, to be followed by a discussion

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W

Monday, Feb 21st, to Saturday, Feb 26th —Fellowship of Medicine Special lecture at the Medical Society, 11, Chandos street, Cavendish square, W, at 5 P M, on Thurs, Dr G A Sutherland Fits and Faints Open to all members of the medical profession without fee —Central London Throat, Nose, and Ear Hospital, Gray's Inn road W C Special clinical surgery demonstration on Feb 24th, at 2 P M, by Dr Andrew Wylie Open to all members of the medical profession without fee, but those wishing to attend are asked to notify the hospital secretary (Museum 1539) —Royal Westminster Ophthalmic Hospital, Charing Cross, W C Special lecture at 5 P M on Feb 23rd, Mr C L Gimblett Affections of the Cornea —London Lock Hospital, Dean street, W Special course in Venereal Diseases Clinical work daily and special lectures —National Hospital, Queen square, W C Special course in Neurology Daily instruction and special lectures —Further information from the Secretary

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

Monday, Feb 21st —10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical, and Gynæcological Clinics Operations

Tuesday —2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations

Wednesday —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations

Thursday —11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations

Friday —10 30 A M, Throat, Nose, and Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations

On Monday, Feb 21st, and Wednesday Feb 23rd, there will be special demonstrations of Medical Cases and Eye Cases by Dr J B Alexander and Mr N B B Fleming respectively

ROYAL NORTHERN HOSPITAL POST-GRADUATE INTENSIVE COURSE

Monday, Feb 21st —2 15 P M, Dr W R Reynell The Treatment of the Anxiety-Neuroses 3 15 P.M, Mr Kenneth M Walker The Treatment of Prostatic Obstruction

Tuesday —2 15 P M, Dr J W McNee Some Diseases of the Biliary Tract 3 15 P M, Mr A M Zamora Carcinoma of the Larynx

Wednesday —2 15 P M, Dr H C Semon Notes on the Diagnosis of Skin Diseases 3 15 P M, Mr J B Hunter The Surgery of the Chest

Thursday —2 15 P M, Dr Bruce Williamson Drugs in Disease of the Heart 3 15 P M, Mr C S Lane Roberts On Obstructed Labour

Friday —2 15 P M, Mr F D Saner Cancer of Rectum 3 15 P M, Mr C L Gimblett Some Points of General Interest in Eye Diseases

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

Monday, Feb 21st.—10 A M, Mr MacDonald Genito Urinary Operations 2 P M, Mr Addison Surgical Wards 2 P M, Dr Ironside Medical Out patients

Tuesday —10 A M, Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M, Mr Vlasto Throat, Nose, and Ear Department

Wednesday —10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Out-patients 2 30 P M, Mr Armour Surgical Wards

Thursday —10 A M, Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 4 P M, Sir Henry Simson Meddlesome Midwifery

Friday —11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out patients

Saturday —9 30 A M, Dr Burnford Bacterial Therapy

Daily —10 A M to 5 P M, Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays 10 A M to 1 P M)

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C

Thursday, Feb 24th —4 P M, Dr Shires X Ray Diagnosis

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY POST-GRADUATE LECTURES

Wednesday, Feb 23rd —5 30 P M, Mr S A Riddett Some Lesions of the Soft Tissues of the Mouth in Children fortune in the practice of his profession in the sparsely settled colonies The colonists themselves, as has already been indicated, were so actively engaged in the struggle for existence, and in securing the bare necessities of life—surrounded as they were by unfriendly natives and equally unfriendly neighbours—that little time was left for the consideration of medical education

The Psalmist's conception of "the pestilence that walketh in darkness and the arrow that flieth by day" was to the poor harassed colonist no mere figure of speech but a stern reality The ravages of the oft-recurring pestilences—smallpox, yellow fever, malaria, diphtheria, &c —were far deadlier than the Red Man's arrows or the bullets of the French The pages of fiction contain nothing more thrilling than the exploits of such sterling characters as the pioneers and pathfinders of those early days, many of whom were doctors Ephraim McDowell, Benjamin Dudley, Nathan Smith, Daniel Drake, and hosts of others whose names are known to posterity, or unknown, as the case may be What could be more tragic than the melancholy records of the many and varied pestilences that, from time to time, sweeping over the different settlements with irresistible fury, wiped many of them completely out of existence? What could be more sublime than the courage and the fortitude with which those early settlers, with dogged determination, stood up against oft-recurring dangers, difficulties, and disaster that would have terrified and utterly discouraged hearts cast in a less heroic mould?

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In 1762, William Shippen, jun, one of these young educated Americans just mentioned, returned to his native city, Philadelphia, where he was joined three years later by John Morgan, also just returned from a season of foreign study Morgan, like Shippen, had enjoyed the privilege of working under John Hunter for an extended period Both had been resident students in his household and both had taken their medical degrees at Edinburgh, spending five years each in foreign study Shortly after his return, Morgan delivered a public lecture on the Institution of Medical Schools in America. This lecture so impressed the trustees of the University of Pennsylvania that they at once decided to establish a medical department, and asked Morgan to take the chair of medicine and Shippen that of surgery A few months later Adam Kuhn and Benjamin Rush, both educated abroad, were added to the faculty Thus was established in 1765 the first school of medicine in America, with its founder, John Morgan, and its first professor of surgery, William Shippen, jun, both former pupils of and confessedly much influenced by their common teacher, John Hunter To Shippen belongs the credit for having first suggested to Morgan the idea of a medical school, though it was the latter who was chiefly instrumental in bringing about its final consummation

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William Shippen, jun, one of the founders and first professor of surgery and anatomy in the Philadelphia Medical College, took his A B degree at Princeton He then studied for a season in his father's office in Philadelphia Later he went to London and became a pupil of the Hunters

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A Liberal Education

Very soon after his return from Europe Shippen began his course of lectures in anatomy, which was the beginning of the Medical Department of the University of Pennsylvania Two degrees were offered by this first School of Medicine, the Bachelor's and the Doctor's Degree in Physic The first class, consisting of ten men, received the Bachelor's Degree on June 21st, 1768 In a circular prepared by John Morgan, the founder, after describing the requirements necessary for the two degrees, he goes on to say "The above scheme of a medical education is upon as extensive and liberal a plan as in any of the most respectable European seminaries, and the utmost care is taken to render the degrees real marks of honor and distinguished learning and ability" He significantly adds "A good medical education is here looked upon as not the least useful part of science" We cannot but admire the spirit exhibited by these eager and enthusiastic young men and their courage and foresight in planning upon such broad and liberal lines the infant institution founded by them, as shown in the requirement of a previous liberal education before undertaking the study of medicine, and the establishment of a curriculum of medical study comparing favourably with that of the Old World institutions It was patterned largely after Edinburgh, of which both founders were graduates

Morgan had attained great prominence as a medical teacher when the Medical School was forced, by the outbreak of the War of the Revolution, to close its doors He then became director-general and chief physician of the American Army on Washington's staff During his rather short and active life he was a power in medical circles in the colonies, but he was not interested in surgery and contributed nothing to it, so he drops out of our story

Later Medical Schools

In 1767, two years after the establishment of the Philadelphia School, a second school of medicine was organised in New York. Samuel Bard was the leader in the foundation of the Medical School of King's College, the forerunner of the College of Physicians and Surgeons, now Columbia University, and was its first professor of the theory and practice of physic Among others associated with him in this enterprise were John Jones and Peter Middleton, of whom we shall have more to say later Bard was second only to Benjamin Rush in distinction among American physicians of his day, and stands in the same paternal relation to the establishment of the first medical school in New York, that Morgan and Shippen do to that founded two years earlier in Philadelphia A full medical faculty of six professors was named, and the first course of lectures given in 1768–69, at the end of which the Degree of Bachelor of Medicine was given to two young men, and in the following year the degree of M D, the first time that this degree was awarded in America

Reference should also be made to Harvard Medical School and its founder, John Warren While Warren did not enjoy the advantages of a foreign education and training, still, as stated by Mumford, he undoubtedly belongs, as does his more famous son, in that group of American surgeons who received their inspiration from John Hunter After the close of the Revolutionary War, in which he had served with distinction as a hospital surgeon, he began a course of lectures which gradually developed into the Medical

Notes, Comments, and Abstracts.

THE INFLUENCE OF JOHN HUNTER UPON EARLY AMERICAN SURGERY

Being the Hunterian Lecture delivered before the Hunterian Society at the Mansion House, London, on Jan 17th, 1927,

By John M T Finney, MD,

PROFESSOR OF CLINICAL SURGERY AT JOHNS HOPKINS HOSPITAL, BALTIMORE, SOMETIME PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS AND CHIEF CONSULTANT IN SURGERY TO THE AMERICAN EXPEDITIONARY FORCE

[Prof Finney began by referring to the kinship, mutual interest, and common purpose which bind the two great English-speaking nations and went on to pay an eloquent tribute to the achievements of John Hunter, whom he described as the founder of modern scientific surgery He proceeded as follows —]

In order to comprehend more clearly the deep and lasting influence that Hunter and his pupils have exerted upon surgical thought and action in the United States of America it is necessary to have as a background some knowledge of the history and development of early American surgery

There seems to be little definitely known, beyond their names, regarding those who practised medicine in the infancy of the colonies What little is available, however, is of great interest, for those pioneers laid well the foundations for future medical progress in America It is worthy of note that many of them seem to have been possessed of more than ordinary ability and advanced medical learning, such as it was in their day In the various centres, of which Charleston, Philadelphia, New York, and Boston were perhaps the chief, and which, for 300 years, comprised practically all of the area occupied by the settlers, we find here and there individuals some with medical degrees, chiefly from Edinburgh, but more without and with little or no special training, who were using their skill and the little medical knowledge they possessed, for the benefit of their fellows, with a surprising measure of success

Since educated men among the colonists were at a premium, it was not uncommon to find several offices combined in the same individual, exhibiting a versatility unusual in this day One of the most common combinations, especially in New England, perhaps was that of clergyman and doctor For instance, the earliest practitioner of medicine in Massachusetts was Samuel Fuller, one of the passengers on the *Mayflower* in 1620, and a deacon of the church at Plymouth, who is continually referred to in the ancient records as "surgeon of the settlement" Although he had no medical degree he served as medical adviser to all the colonies about that part of Massachusetts Bay The records contain abundant evidence to show that the good deacon exercised spiritual powers of no mean order, as well as skill in the management of physical ills, for, aided, no doubt, by prayer and the *vis medicatrix Naturæ*, it is related of him that he ' met with great success in his practice"

The earlier records also contain instances of medical men attaining high rank in civil and political life Several governors are numbered among them, of which perhaps the most conspicuous example is the younger Winthrop, who was Governor of Connecticut, a man of such distinguished scientific attainment as to have been one of the founders of the Royal Society Three of the earlier presidents of Harvard University, and the first president of Princeton, were doctor-preachers

In reviewing thus hastily the status of medicine in the American colonies in the seventeenth century, it should be borne in mind that they stretched in a narrow strip from what is now Florida to Massachusetts, bordered upon the one hand by the Atlantic Ocean, and on the other by the unexplored wilderness inhabited by wild men and wild beasts They were a series of more or less isolated settlements, representing various nationalities and interests, with little or no cohesion; they were torn by political and religious strife, the communication between the various groups being irregular and difficult, their educational facilities were most meagre and undeveloped In this period, while a few names stand out in the medical profession, a small but not insignificant beginning was made of medicine in the New World It was all that could reasonably be expected, perhaps, considering the conditions which obtained at that time, and it served as a necessary basis for better things to come

The Eighteenth Century

The first half of the eighteenth century marked little advancement in American medicine The reason for this may well have been the very unsettled social and political conditions in which the colonies still found themselves Starting with Queen Anne's War, in 1702, wars and rumours of war with Spain, France, and their Indian neighbours, finally culminating in 1776 in the American Revolution, kept the colonists in such an agitated state of mind as to militate strongly against the development of scientific pursuits Several significant influences, however, were beginning to make themselves felt While everything medical yet remained provincial to a degree, and almost entire dependence was placed upon Europe for instruction and advancement along this line, still men were beginning to see that interchange of ideas was necessary for progress, and feeble attempts were apparent here and there to adapt old methods to new conditions

The earlier American medical writings were of little merit and were largely descriptive in character, dealing with personal observation of new flora of the wilderness and their therapeutic properties, with reports of cases, or with personal experiences with epidemics, of which small-pox was the most deadly Sydney Smith's caustic criticism with regard to the character and number of American medical contributions up to this time was, unfortunately, quite pertinent The name of one man stands out as perhaps the most prominent in the earlier years of the century, that of Zabdiel Boylston, of Boston He was the son of Dr Thomas Boylston, an Englishman with an Oxford degree, who had come out in 1635 The younger Boylston studied medicine with his father, as it was before the days of colonial medical schools He is noted chiefly for the brave stand that he took in the controversy over inoculation for small pox. He had the courage to inoculate, in 1721, his own son, a lad of 13, and two of his house servants This occurrence took place just six weeks after Lady Mary Wortley Montague's famous inoculation séance and, of course, in entire ignorance of it For this he suffered severe persecution for a time, but finally triumphed after demonstrating to both the profession and the laity the great value of inoculation Subsequently he was officially invited to come to London to demonstrate his method Here he was received by Royalty, and was made a member of the Royal Society—the first native American to be so honoured

Pioneers of Medical Education in America

But the eighteenth century in its second generation produced another group of half a dozen medical men of sufficient note to warrant brief mention These all, with a single exception, Thomas Cadwallader, of Philadelphia, came from the south, of which at that time Charleston was the social and commercial centre Cadwallader was educated abroad and was a pupil of Cheselden On his return from London, as was so frequently done by those who, like himself, had had the benefit of foreign study, he established a class in practical anatomy and dissection He appreciated the value of adequate medical education and was among the first to advocate the establishment of a medical school in the colonies The other five, all Scotsmen, with one exception, were John Lining John Moultrie, Lionel Chalmers, Alexander Garden, and William Bull, the last named being American born These men were all of a type which would have left its impress anywhere Educated chiefly in Edinburgh they were among the first to transplant Old World ideas and ideals to the New They introduced the European culture and scientific point of view that was to be a little later brought over in greater volume by the continually increasing number of young, native-born, but foreign-taught, Americans Heretofore, the only local medical training available had been through men educated in foreign countries, who had come out either as colonists or as army surgeons, and had remained permanently This crude haphazard method sufficed for a time, until the founding of Harvard in 1636, and the other colleges thereafter in fairly rapid succession The young men educated there, with higher ideals, were not satisfied with a picked-up (so to speak) medical course They looked, therefore, across the sea to the centres where adequate instruction was to be found

It has been noted with some surprise, by historians of the colonial period in America, that medicine, as a separate branch of education, had received so little consideration during the first century after the settlement of the country While, as is characteristic of English colonisation everywhere, the school-house had accompanied the pioneer, and institutions of learning more or less advanced had been early established, yet it was not until after the first half of the eighteenth century had passed that any attempt had been made to establish a medical college, and up to the time of the Revolution less than half a hundred young men had been graduated therefrom It will at once be evident that many causes were active in bringing about this condition of affairs The chief of these, perhaps, was the backward state of the profession everywhere, even in Europe In the new colonies the hardy pioneer stood less in need of medical attention than others less actively engaged Little opportunity was offered to the medical man for either fame or fortune in the practice of his profession in the sparsely settled colonies The colonists themselves, as has already been indicated, were so actively engaged in the struggle for existence, and in securing the bare necessities of life—surrounded as they were by unfriendly natives and equally unfriendly neighbours—that little time was left for the consideration of medical education

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Morgan had attained great prominence as a medical teacher when the Medical School was forced by the outbreak of the War of the Revolution, to close its doors He then became director-general and chief physician of the American Army on Washington's staff During his rather short and active life he was a power in medical circles in the colonies, but he was not interested in surgery and contributed nothing to it, so he drops out of our story

Later Medical Schools

In 1767 two years after the establishment of the Philadelphia School, a second school of medicine was organised in New York. Samuel Bard was the leader in the foundation of the Medical School of King's College, the forerunner of the College of Physicians and Surgeons, now Columbia University and was its first professor of the theory and practice of physic Among others associated with him in this enterprise were John Jones and Peter Middleton, of whom we shall have more to say later Bard was second only to Benjamin Rush in distinction among American physicians of his day, and stands in the same paternal relation to the establishment of the first medical school in New York, that Morgan and Shippen do to that founded two years earlier in Philadelphia. A full medical faculty of six professors was named, and the first course of lectures given in 1768–69, at the end of which the Degree of Bachelor of Medicine was given to two young men and in the following year the degree of M D, the first time that this degree was awarded in America

Reference should also be made to Harvard Medical School and its founder, John Warren. While Warren did not enjoy the advantages of a foreign education and training still, as stated by Mumford, he undoubtedly belongs, as does his more famous son, in that group of American surgeons who received their inspiration from John Hunter After the close of the Revolutionary War, in which he had served with distinction as a hospital surgeon, he began a course of lectures which gradually developed into the Medical

Notes, Comments, and Abstracts.

THE INFLUENCE OF JOHN HUNTER UPON EARLY AMERICAN SURGERY.

Being the Hunterian Lecture delivered before the Hunterian Society at the Mansion House, London, on Jan 17th, 1927,

By John M T Finney, M D,

PROFESSOR OF CLINICAL SURGERY AT JOHNS HOPKINS HOSPITAL, BALTIMORE, SOMETIME PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS AND CHIEF CONSULTANT IN SURGERY TO THE AMERICAN EXPEDITIONARY FORCE

[Prof Finney began by referring to the kinship, mutual interest, and common purpose which bind the two great English-speaking nations and went on to pay an eloquent tribute to the achievements of John Hunter, whom he described as the founder of modern scientific surgery. He proceeded as follows —]

In order to comprehend more clearly the deep and lasting influence that Hunter and his pupils have exerted upon surgical thought and action in the United States of America it is necessary to have as a background some knowledge of the history and development of early American surgery.

There seems to be little definitely known, beyond their names, regarding those who practised medicine in the infancy of the colonies. What little is available, however, is of great interest, for those pioneers laid well the foundations for future medical progress in America. It is worthy of note that many of them seem to have been possessed of more than ordinary ability and advanced medical learning, such as it was in their day. In the various centres, of which Charleston, Philadelphia, New York, and Boston were perhaps the chief, and which, for 300 years, comprised practically all of the area occupied by the settlers, we find here and there individuals, some with medical degrees, chiefly from Edinburgh, but more without and with little or no special training, who were using their skill and the little medical knowledge they possessed, for the benefit of their fellows, with a surprising measure of success.

Since educated men among the colonists were at a premium, it was not uncommon to find several offices combined in the same individual, exhibiting a versatility unusual in this day. One of the most common combinations, especially in New England, perhaps, was that of clergyman and doctor. For instance, the earliest practitioner of medicine in Massachusetts was Samuel Fuller, one of the passengers on the *Mayflower* in 1620, and a deacon of the church at Plymouth who is continually referred to in the ancient records as "surgeon of the settlement." Although he had no medical degree he served as medical adviser to all the colonies about that part of Massachusetts Bay. The records contain abundant evidence to show that the good deacon exercised spiritual powers of no mean order, as well as skill in the management of physical ills, for, aided, no doubt, by prayer and the *vis medicatrix Naturæ*, it is related of him that he "met with great success in his practice."

The earlier records also contain instances of medical men attaining high rank in civil and political life. Several governors are numbered among them, of which perhaps the most conspicuous example is the younger Winthrop, who was Governor of Connecticut, a man of such distinguished scientific attainment as to have been one of the founders of the Royal Society. Three of the earlier presidents of Harvard University, and the first president of Princeton, were doctor-preachers.

In reviewing thus hastily the status of medicine in the American colonies in the seventeenth century, it should be borne in mind that they stretched in a narrow strip from what is now Florida to Massachusetts, bordered upon the one hand by the Atlantic Ocean, and on the other by the unexplored wilderness inhabited by wild men and wild beasts. They were a series of more or less isolated settlements, representing various nationalities and interests, with little or no cohesion, they were torn by political and religious strife, the communication between the various groups being irregular and difficult, their educational facilities were most meagre and undeveloped. In this period, while a few names stand out in the medical profession, a small but not insignificant beginning was made of medicine in the New World. It was all that could reasonably be expected, perhaps, considering the conditions which obtained at that time, and it served as a necessary basis for better things to come.

The Eighteenth Century

The first half of the eighteenth century marked little advancement in American medicine. The reason for this may well have been the very unsettled social and political conditions in which the colonies still found themselves. Starting with Queen Anne's War, in 1702, wars and rumours of war with Spain, France, and their Indian neighbours, finally culminating in 1776 in the American Revolution, kept the colonists in such an agitated state of mind as to militate strongly against the development of scientific pursuits. Several significant influences, however, were beginning to make themselves felt. While everything medical yet remained provincial to a degree, and almost entire dependence was placed upon Europe for instruction and advancement along this line, still men were beginning to see that interchange of ideas was necessary for progress, and feeble attempts were apparent here and there to adapt old methods to new conditions.

The earlier American medical writings were of little merit and were largely descriptive in character, dealing with personal observation of new flora of the wilderness and their therapeutic properties, with reports of cases, or with personal experiences with epidemics, of which small-pox was the most deadly. Sydney Smith's caustic criticism with regard to the character and number of American medical contributions up to this time was, unfortunately, quite pertinent. The name of one man stands out as perhaps the most prominent in the earlier years of the century, that of Zabdiel Boylston, of Boston. He was the son of Dr Thomas Boylston, an Englishman with an Oxford degree, who had come out in 1635. The younger Boylston studied medicine with his father, as it was before the days of colonial medical schools. He is noted chiefly for the brave stand that he took in the controversy over inoculation for small-pox. He had the courage to inoculate, in 1721, his own son, a lad of 13, and two of his house servants. This occurrence took place just six weeks after Lady Mary Wortley Montague's famous inoculation séance and, of course, in entire ignorance of it. For this he suffered severe persecution for a time, but finally triumphed after demonstrating to both the profession and the laity the great value of inoculation. Subsequently he was officially invited to come to London to demonstrate his method. Here he was received by Royalty, and was made a member of the Royal Society—the first native American to be so honoured.

Pioneers of Medical Education in America

But the eighteenth century in its second generation produced another group of half a dozen medical men of sufficient note to warrant brief mention. These all, with a single exception, Thomas Cadwallader, of Philadelphia, came from the south, of which at that time Charleston was the social and commercial centre. Cadwallader was educated abroad and was a pupil of Cheselden. On his return from London, as was so frequently done by those who, like himself, had had the benefit of foreign study, he established a class in practical anatomy and dissection. He appreciated the value of adequate medical education and was among the first to advocate the establishment of a medical school in the colonies. The other five, all Scotsmen, with one exception, were John Lining, John Moultrie, Lionel Chalmers, Alexander Garden, and William Bull, the last named being American born. These men were all of a type which would have left its impress anywhere. Educated chiefly in Edinburgh they were among the first to transplant Old World ideas and ideals to the New. They introduced the European culture and scientific point of view that was to be a little later brought over in greater volume by the continually increasing number of young, native-born, but foreign-taught, Americans. Heretofore, the only local medical training available had been through men educated in foreign countries, who had come out either as colonists or as army surgeons, and had remained permanently. This crude haphazard method sufficed for a time, until the founding of Harvard in 1636, and the other colleges thereafter in fairly rapid succession. The young men educated there, with higher ideals, were not satisfied with a picked-up (so to speak) medical course. They looked, therefore, across the sea to the centres where adequate instruction was to be found.

It has been noted with some surprise, by historians of the colonial period in America, that medicine, as a separate branch of education, had received so little consideration during the first century after the settlement of the country. While, as is characteristic of English colonisation everywhere, the school-house had accompanied the pioneer, and institutions of learning more or less advanced had been early established, yet it was not until after the first half of the eighteenth century had passed that any attempt had been made to establish a medical college, and up to the time of the Revolution less than half a hundred young men had been graduated therefrom. It will at once be evident that many causes were active in bringing about this condition of affairs. The chief of these, perhaps, was the backward state of the profession everywhere, even in Europe. In the new colonies the hardy pioneer stood less in need of medical attention than others less actively engaged. Little opportunity was offered to the medical man for either fame or

Lettsomian Lecture

ON THE

SURGERY OF THE SPINAL CORD AND ITS MEMBRANES.

Being the First Lettsomian Lecture in 1926. delivered before the Medical Society of London on Feb. 21st 1927,

BY DONALD ARMOUR, C.M.G., M.B. TORONTO, F.R.C.S. ENG., M.R.C.P. LOND.,

SENIOR SURGEON TO THE WEST LONDON HOSPITAL AND SURGEON TO THE NATIONAL HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM.

IT is somewhat to be wondered at that this subject has not been dealt with before in these lectures, for it is one around which controversy has raged from time to time with some bitterness—controversy finally laid to rest, at any rate as far as concerns the subject in its broadest aspects, by the introduction of Listerian surgery and by the great progress made in recent years in neurological diagnosis and localisation

HISTORY.

It is true that the discussions for and against operation were limited at first to cases of injury of the spine, but there can be little doubt that operation was advocated, and almost certainly practised, from the earliest times Hippocrates writing in his "Treatise on Articulations," advises that when bloodless methods have failed to reduce a fracture—dislocation of the spine, the body should be opened and the vertebra replaced from before backwards by the hand in the abdomen He adds naively, however, "that this is only possible in the dead, and not on the living" The successors of Hippocrates. on the contrary, advised that surgical intervention should be directed to the vertebral arches, which were considered to be the cause of the medullary compression

In the seventh century Paulus Aegneta urged that, when there is compression of the spinal cord an incision should be carried down to the bone and an attempt made to raise the compressing fragment This, he adds, should be done only after warning the patient of the danger of the operation

In 1526 Fabricius Hildanus proposed that when extension and coaptation were unsuccessful, the following operation should be performed An incision is made down to the spinous processes of the vertebræ and prolonged upon their right and left sides, to expose the laminæ. (An exact description, it will be noticed, of the modern operative approach.) Then the fragments are to be seized with forceps and the luxation reduced while simultaneous extension is made upon the spine to aid the reduction He advises operation as soon as possible after the accident

In 1545 Ambroise Paré urged surgeons to greater boldness and advised the removal where possible, of the splinters or pieces of bone which had been driven in and were compressing the cord and nerves Vigier in 1559, Heister in 1739 and James in 1745 all advised the same procedure Heister says · ' But to offer the patient no assistance because we despair would seem cruel and uncharitable therefore we must try our skill though our efforts should be in vain; in order to which the surgeon must lay bare the fractured vertebræ with a scalpel and replace or else remove such fragments as injured the spinal marrow."

Louis in 1762 performed what was the nearest approach to a formal resection of the spine upon M de Villedon Captain in the Regiment of Vaubecourt, who was paralysed from a gunshot wound of the back, received at the battle of Aménébourg. Fragments of bone were removed and the patient finally recovered sufficiently to be able to walk Louis also speaks of ' the indication for the trephine. even without fracture, to give exit to blood or matter, or even to prevent suppuration in some cases of fracture" He made a sketch of the operation suggested Chopart and Desault (1771) speak of it as a very simple thing to trephine between the spinous and transverse processes to give issue to effused fluids, or to elevate or remove pieces of bone which may wound the cord They were supported in this by Benjamin Bell 1796

The Beginning of Modern Surgical Practice

But these counsels remained for the most part purely theoretical until 1814 just a year before the death of the founder of this Society, when the younger Cline performed the first formal operation for the removal of a depressed vertebral arch. In the clinical lecture which he delivered afterwards to explain the reasons which had induced him to perform this operation, and the grounds upon which he hoped for success, he said that he considered that in fracture with displacement of the vertebræ, which compressed the spinal cord, the cord was under precisely the same circumstances as the brain with a depressed fracture of the skull, and that the indications were the same in both cases—i e removal of the compression He considered that the only reasonable objection to the operation was the inability to decide before operation whether the cord was simply compressed, either by bone or effused blood, or partially or completely severed.

Cline's operation. although the patient died. attracted widespread attention and gave rise to vehement discussion as to its justification This discussion often degenerating into bitter and virulent personalities, went on for many years Astley Cooper, Benjamin Bell, Tyrrell, South, and others upholding the operation, while Charles Bell. John Bell Benjamin Brodie, and others violently opposed it Brodie thought that under the most auspicious circumstances more harm than good would result from the operation But Astley Cooper urged that it might occasionally be successful and alluded to the opponents to the operation as "blockheads" To this Charles Bell retorted :—

> "We must submit to hear many strange proposals for the improvement of our profession in the present day from young men ambitious of notice, but that a man of Sir Astley's years and station should talk as he has done before students, and give them his authority for laying a patient upon his belly, and by incisions laying bare the bones of the spine, breaking up these bones, and exposing the spinal marrow itself, exceeds all belief"

And this coming from the leading neurologist of the day. doubtless had a great influence in retarding the development of spinal surgery.

Failures and Successes

For some years only an occasional operation. almost invariably unsuccessful, was reported from time to time, though one by a Welsh surgeon named Edwards was reported in 1838 as being successful. But the details are meagre. So unsuccessful were the results of the operation that Malgaigne in his "Treatise on Fractures and Luxations" (1847) joined the ranks of its opponents and threw the weight of his authority against the operation; though Bodez in his thesis (Paris, 1861) thought that in desperate cases a life might be saved by such means

In 1865 considerable interest in the subject was revived by Robert McDonnell, who reported a successful case of Dr. Samuel Gordon of Whitworth Hospital, Dublin. a fatal case of his own and reviewed 26 cases of trephining of the spine, in seven of which a favourable result was obtained In 1866 Jonathan Hutchinson opposed the operation in a lengthy article. in which he denied that the cord was ever permanently compressed by the bodies. by the laminæ, or by extravasated blood, but urged as his chief reason against the operation that "you convert a simple into a compound fracture and add the risks of pyæmia. together with those of spinal meningitis"

In 1869 Thomas Nunnely. in an address before the British Medical Association again brought the subject before the profession. His general conclusion

Department of Harvard University, which was founded in 1783 He served as professor of anatomy and surgery until his death in 1815

In speaking of the founding of medical schools in the United States mention should be made of that most extraordinary personality, one of the most interesting in the surgical annals of the country—namely, Nathan Smith, the exemplar par excellence of the peripatetic medical professors, in which, for a season during their early development, the medical schools of America abounded He graduated in medicine from Harvard University in 1790, and eight years thereafter, in 1798, he founded Dartmouth Medical School, where for more than a dozen years he was the entire faculty, teaching all branches and occupying what Oliver Wendell Holmes has facetiously described as "not a chair, but a whole settee of professorships" In 1813 he left Dartmouth to establish the Medical Department of Yale College in New Haven, where he filled the chair of surgery Later on he founded two other medical schools, one in Vermont, the other in Maine As this brief history would indicate, Nathan Smith was a most interesting and many-sided personality, an all-round specialist, a pioneer investigator and writer along various lines, both medical and surgical, as witness his description of typhoid fever, pronounced a classic by Sir William Osler, and his performance of ovariotomy, independently of, and a few years later than, Ephraim McDowell His studies in the pathology of necrosis of bone, the principles established by him in the use of certain apparatus for the treatment of fractures, and his studies in dislocation of the hip, all stamp him as an original thinker and a surgeon of ability Throughout a long life he was a consistent exponent of the best Hunterian traditions

Influential Helpers

It is interesting to note the very important part played by Benjamin Franklin in establishing the first medical school in the colonies It was largely due to his timely assistance and constant encouragement at a time when they were sorely needed that medical education was really begun in the States Acknowledgment should also be made of the invaluable aid and support, both material and moral, rendered these infant medical schools by the celebrated Dr John Fothergill and his successor, John Lettsom, whose interest, in the first place, was enlisted through the Society of Friends, of which both were members, and to which so large a portion of the early colonists, especially in Pennsylvania, also belonged Fothergill was the adviser of both Morgan and Bard in planning the Philadelphia and New York schools He was a generous contributor to both, and one of the incorporators of the latter He it was who, upon the founding in 1763 of the first medical library, that in connexion with the Philadelphia Hospital, presented to it the first book, a volume on Materia Medica

Up to this time the majority of American medical students had gone to Edinburgh for their medical degrees, attracted thither by the fame of the great teachers comprising the faculty at that time—Cullen, the Munros, with Black, Whytte, Bell, and others The most of these students also spent some time in London, largely attracted by the fame of Pott, Baillie, the Hunters and their school, and others It is very difficult to estimate, with any degree of exactness, the relative influence of these two centres upon the thought and practice of the American students Both influences were very potent no doubt upon the receptive minds of the eager young colonists Certain it is that, in reading the letters written by many of them while enjoying the advantages that these great centres offered, one is struck by the enthusiasm and devotion inspired by their teachers

(*To be concluded*)

GEORGIUS BUCHANANUS SCOTUS

THE human boy has a feeling of unmixed satisfaction when he has the chance of observing the dethronement of some idol which has been held as a pattern before his sinful eyes by those set in authority over him The adult joy in a corresponding situation is tempered by some sad regret at the passing of what he once held as sacrosanct Something of this feeling is produced by the latest investigations of the claims of mementos of the famous George Buchanan, whose portrait in the Senate Hall, and skull in the University Library, bear testimony to the respect and admiration given to him by his fellow-countrymen Prof Karl Pearson, when he gave the fifth Henderson Trust Lecture last June, attacked the authenticity of one or both of these presentments of the great scholar in the temple of his fame His lecture[1] deals with the known portraits, and shows us that the long, dour, and rather fanatical face of the Scottish ideal is less likely to represent the actual man, as he was, than the more human face of the Royal Society portrait The difference appears to be that between Cato and Catullus as Prof Pearson expresses it, and we seem forced to admit that the Edinburgh portrait is rather what he ought to have been—to be in keeping with the halo—than what it is possible he may really have been in his moments of relaxation According to Prof Pearson's well ordered argument, either the skull or the Edinburgh portrait is not that of the famous George Buchanan This interesting exposition of the application of anthropological artistic criticism deserves study

NEW PREPARATIONS

Messrs Burroughs Wellcome and Co state that they now supply their brand of insulin in the strength of 200 units in 5 c cm as well as in the regular strength of 100 units in 5 c cm To avoid the possibility of overdosage the more concentrated preparation is issued with a label and in a carton of distinctive colour

The British Drug Houses, Ltd , announce that they are in a position to supply to any medical men who wish to make a clinical trial of activated ergosterol a solution of 0 1 per cent of crystalline ergosterol which has been activated by irradiation under carefully controlled conditions In THE LANCET of Feb 5th, 1927, Rosenheim and Webster, discussing the nature of the parent substance of vitamin D, showed that when ergosterol is subjected to ultra-violet irradiation photochemical action results in the formation of a substance which has extraordinarily potent antirachitic properties, and that probably less than one-thousandth of a milligramme of it per diem suffices to cure rickets in a rat The manufacturers state that so far as can be foretold, this solution may be expected to possess 20–50 times the antirachitic activity of cod liver oil, thus, from ¼ to 1 c cm should prove an effective daily dose A bottle of this solution will be sent without charge to any registered medical practitioner who may apply for it

THE PAINLESS DESTRUCTION OF ANIMALS

THE manageress of Our Dumb Friends' League Home for Cats and Dogs at Bedford was convicted last week of causing unnecessary suffering to a cat which had been sent by its owner for painless destruction The Royal Society for the Prevention of Cruelty to Animals undertook the prosecution The lady to whom the cat had belonged gave evidence to the effect that about a week after she had sent the animal to the home to be destroyed in the lethal chamber it reappeared in her garden, about one and a half miles away, in an extremely weak condition and died before she could carry it indoors The defendant stated that when she took the cat out of the lethal chamber it appeared to be dead In cross-examination she said she did not notice the time at which the cat went into and came out of the box It was urged on her behalf that it was a case of error of judgment rather than an act of deliberate cruelty The magistrates fined the defendant £3 with £4 7*s* costs, the chairman remarking that there was a lack of various precautions which would have prevented the terrible suffering which the cat underwent He added that the arrangements for the destruction of animals at this home needed more careful regulation

If such incidents are repeated public opinion is likely to insist upon the registration, licensing, and inspection of institutions—other than those under the charge of a veterinary surgeon—which undertake the painless destruction of animals

"CIRCULARS"

To the Editor of THE LANCET

SIR,—In common, I suppose, with others in general practice, I frequently receive in the form of pamphlets reprints of articles by specialists When these are from authors with whom I have had professional dealings I am always glad to receive and read them, or when they are evidently distributed, not by the author himself but by some impersonal body, such as a learned society or more often, by an association founded for the promotion of public welfare, these, too, are acceptable enough

But I wish to protest against the growing habit, favoured by a certain type of specialists, of disseminating broadcast reprints of their articles to general practitioners with whom they have had no previous relations In these circumstances such pamphlets appear to be attempts at auto-advertisement, indistinguishable from the methods of the tradesman touting for orders

The general practitioner would be wise to treat them as "circulars," merely noting the names of the authors so that their services may be eschewed in the future If the General Medical Council desires to investigate this form of professional advertising, and requires material for that purpose, the contents of my waste-paper basket are always at their disposal

I am, Sir, yours faithfully,
C WILLETT CUNNINGTON

Dollis Avenue, Church End, Finchley, N , Jan 30th, 1927

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[1] On the Skull and Portraits of George Buchanan Published in Biometrika Nov, 1926, and separately by Oliver and Boyd Edinburgh 6*d*

Tumours of the Spinal Cord

Turning now to the more interesting subject of tumours of the spinal cord, we find that in the 50 cases collected by Horsley in 1887 and a second 50 collected later by Mills and Lloyd, the two including all those of which we have any satisfactory knowledge, no mention is made of operation in a single instance And yet as early as 1873, Leyden of Strassburg had suggested that tumours of the spinal cord might be submitted to the operation of trephining the spine as the only means of extirpating them He said that such an operation was as feasible as that for fracture of the spine, and that, in spite of the difficulties of diagnosis and the dangers of the operation, in view of their otherwise absolute hopelessness, an operation in suitable cases was wholly justifiable "Bei der volligen Hoffnungslosigkeit aber wäre ein Versuch im geeigneten Falle wohl gerechtfertigt" In one case in which he had localised the tumour, he had actually raised the question of operation, but was deterred from going further because the size of the tumour would have necessitated the removal of two vertebral arches, and the opening of the dura would have risked the setting up of a diffuse meningitis (Fig 1)

Then Erb in 1878 discussed the subject theoretically, while Byron Bramwell in 1882 urged an operation in suitable cases, and was supported by Gowers in 1886, who maintained that the removal of a tumour from the spinal meninges was a less dangerous procedure than the removal of a tumour from the brain The proof of this statement was to come in the following year through the neurological acumen of Gowers and the surgical skill of Horsley, when a previously unrecognised tumour of three years' duration lying on the left side of the fourth dorsal segment was diagnosed by Gowers on June 5th, 1887, and removed by Horsley four days later There were also present on this epoch-making occasion, which proved to be the birth of spinal tumour surgery, Dr Percy Kidd, a relative of the patient, Mr Walter Edmunds, at that time resident medical officer of St Thomas's Home, Mr Edwin Francis White, who gave the anæsthetic, the late Dr Frederick Osmund Stedman, at that time house physician at the National Hospital; and Sir Charles Ballance, who assisted at the operation (Fig 2)

FIG 2

Tumour removed by Horsley on June 5th 1887 (Actual size)

SPINAL PUNCTURE

Although lumbar puncture was *first* used by Corning as far back as 1885, it did not come into general use until 1891, when Quincke in Germany, and Essex Wynter in this country, brought it to the notice of the profession as a means of reducing the increased intracranial pressure in hydrocephalus Marie, Foix, and Robert in 1913 introduced double spinal puncture and showed that qualitative differences were present in the cerebro-spinal fluid above and below a spinal tumour Queckenstedt in 1916, using lumbar puncture alone, showed that the pressure in the lumbar canal rose on compression of the jugular veins when there was no spinal block, but did not do so in the presence of an obstruction This obstruction must, however, be complete, otherwise a positive result may be obtained even in the presence of a tumour

CISTERNAL PUNCTURE

Cisternal puncture was first introduced as a clinical aid in *diagnosis by Wegeforth*, Ayer, and Essick in 1919 It had long been practised on the lower animals as the easiest method of obtaining cerebro-spinal fluid These authors perfected a safe technique in man, and recommended cisternal puncture for reaching the subarachnoid space (1) when the spinal *subarachnoid* space is *blocked* by tumour, adhesions, or bony deformity; (2) in combination with lumbar puncture as a means of irrigating and draining the spinal subarachnoid space, (3) as the best method of administering remedies in meningitis

Ayer has since elaborated a method of combined cisternal and lumbar puncture as a means of determining the presence or *absence of spinal subarachnoid* block, especially in tumours The method is based upon the facts that in the normal individual the cisternal and lumbar fluids are practically identical; their pressures are the same, and oscillations due to coughing, sneezing, holding the breath, or to compression on the jugular veins (Queckenstedt phenomenon) are of similar range

Although diminished pressure below the block is usual, normal pressures are not uncommon, and occasionally an increased pressure may be found. This last may be due to a valvular action of the tumour, extramedullary in position, allowing a downward but preventing an upward flow of the fluid Exudation of serum from the distended spinal veins may also be a contributory factor.

In arriving at a diagnosis of spinal subarachnoid block, Ayer bases his judgment on the two-fold criteria —

1 Evidence of mechanical obstruction to the free passage of fluid in the spinal subarachnoid space as indicated by (*a*) pressure relations at the two points, especially changes in pressure which result after withdrawal of fluid; (*b*) variations in the normal oscillatory movements of the fluid, dependent upon the cerebral pulse and respiration, (*c*) gross changes in fluid pressure caused by pressure on the jugular veins and by coughing, all indicative of mechanical interference with the continuity of the spinal fluid column

2 Evidence of a different chemical composition of the two fluids (cisternal and lumbar) This latter is based upon the fact that the protein-content of the fluid is normally the same throughout the spinal subarachnoid space, but has *always been found increased below an obstruction.*

Ayer goes so far as to say —

> "*It is reasonable to conclude* that protein increase is a more delicate indication of cord compression or meningeal involvement than is demonstrable block"

Greenfield also, from his very large experience at the National Hospital, has expressed the same opinion as to the greater importance of the protein increase over other tests for spinal block

Normally the total amount of protein in the cerebro-spinal fluid is approximately 25 mg. *per* 100 c cm of fluid In cases of spinal block this figure may be increased a hundredfold in the stagnant fluid below the block In *addition there* also accumulates an excess of other substances, such as mineral salts and glucose, while the engorgement of the spinal vessels leading to a state of increased meningeal permeability causes the spinal fluid *to* gradually approximate in chemical composition to the blood plasma Consequently we find in the fluid elements derived from the blood stream which are normally absent Altered blood, for example, producing the characteristic yellow coloration known as xanthochromia, whilst the presence of fibrinogen may cause the fluid to clot spontaneously in the test-tube Certain antibodies, such as hæmolysin, may also be detected

The outstanding features in the cerebro-spinal fluid below an area of spinal compression are therefore (1) xanthochromia, (2) increase in the amount of protein, and (3) occasional spontaneous coagulation These *three* conditions are sometimes spoken of collectively as the "loculation syndrome" The expression "Froin's syndrome" *is sometimes* applied, but incorrectly, for Froin substituted for an increase in the amount of protein an increase in the number of cells We now know, however, *that such* a pleocytosis is an unessential and indeed an uncommon finding

Occasionally a condition *of spinal* fluid stagnation is encountered in the fluid lying immediately *above* a tumour, as shown by increased protein-content, with or without *xanthochromia* This is explained by a transudation into the fluid either from engorged was favourable to the operation This, in the same year, was refuted by Le Gros Clark, who "with every disposition to regard the subject impartially," could not regard "trephining the spine as brought within the pale of the justifiable operations in surgery."

It was at this date that a complete change of opinion appeared for the first time in that great English classic, Erichsen's "Art and Science of Surgery" In the first edition, published in 1853, appeared —

> "This operation (trephining the spine), though performed by Cline, Cooper, and Bell is, I believe, now generally abandoned by the best surgeons in this country, owing to its invariable, and, indeed, intrinsically fatal character"

And so through the next three editions But in the fifth edition, published in 1869, Erichsen comes out as a supporter of the operation in the following words —

> "The results of this operation are not very encouraging But, though so far the result has been but little satisfactory, ought surgeons to discard the operation? I think not, and we are the more justified in this course, as the operation is not necessarily dangerous to life, does not appear often to have hastened the patient's death, and has certainly, in some cases, afforded relief of the most marked character"

In 1870 Brown-Séquard, from the point of view of a neurologist and experimental physiologist, expressed the following conclusions —

> 1 That the laying bare of the spinal cord is not a dangerous operation 2 That death, after a fracture of the spine, is usually due to the effects of pressure, or of excitation of the spinal cord, and is not the result of a partial or a complete section of this organ 3 That reunion may take place after a wound of the spinal cord, so that its lost functions may return 4 That the removal of some parts of the vertebræ may be followed by a production of new bone 5 That the cases of fracture of the spine in which the trephine has been applied show the usefulness of this operation

In spite of this authoritative pronouncement, progress was slow and only isolated cases, mostly fatal, were reported by Cheever (1870), by Willard (1871), by Lucke (1880), by Stemen (1883), by Halsted (1884), and by Pinkerton (1884) The operation was variously described under such extravagant terms as "formidable," "appalling," "well-nigh impossible," "desperate and blind," "unjustifiable," "bloody and dangerous" How great the prejudice against this operation must have been, even in fairly recent times, may be judged by the article in Heath's "Dictionary of Surgery" written by none other than Herbert Page in 1881

> "The operation of trephining the spine, proposed many years ago and adopted several times, has made no progress in surgery, nor is it likely to do so It is an operation not within the range of practical surgery"

Continued Progress

Notwithstanding such uncompromising condemnation in this country, progress elsewhere continued Maydle, of Vienna, in 1882, and Morris, of New York, in 1885 made unsuccessful attempts to unite the severed ends of the spinal cord, while Abbe, in 1889, acting upon Dana's suggestion tried to unite the nerve roots above and below the level of the injury to the cord, hoping thus "to furnish a means of communication between the severed sections" The attempt proved too difficult of accomplishment and had to be abandoned John Duncan, in Edinburgh in 1889, tried to obtain union of the severed cord by simply drawing the ends of the torn dura together and stitching them there, in order to relax tension on the cord But no improvement followed

In February, 1885, William Macewen, operated upon a man, who had a complete paraplegia with bed-sores, resulting from an injury to his lower dorsal spine eight weeks previously The arch of the twelfth dorsal vertebra was found fractured and depressed It was removed together with "a connective tissue tumour" lying between it and the theca, A year later the patient could walk with ease and without support

While Werner was able to find only six cases that had survived the operation out of 31 operations of trephining the spine, it must be remembered that all belong to the pre-Listerian era of surgery Immediately following upon the introduction of antiseptics, greatly improved results were forthcoming, and of 13 operations for fracture of Macewen, Morris, Horsley, Lauenstein, Lucke, Albert, Duncan, Pean, and Allingham, there were three complete recoveries, two recoveries with benefit, seven recoveries unimproved, and one death

Pott's Disease

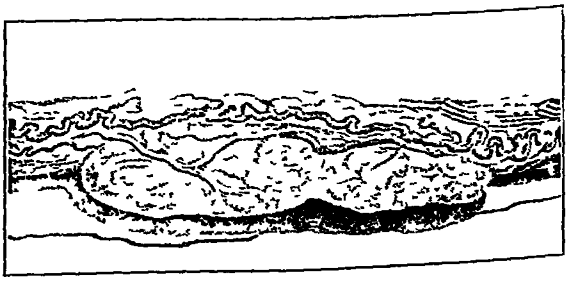
It followed naturally that attention should begin now to be directed to cases of paraplegia due to Pott's disease Hippocrates had already observed that the palsy of the legs and arms, the wasting of the body, and the retention of urine happen chiefly in those cases where there is no spinal deformity, nor any projecting bone forward or backward, and paralytic affections take place the least frequently in cases of gibbous or angular projections And Percival Pott writing in 1720 on the "Useless State of the Lower Limbs in Consequence of a Curvature of the Spine" says —

> "Since I had been particularly attentive to the disorder, I thought that I had observed that neither the extent nor degree of the curve had in general produced any material difference in the symptoms, but that the smallest was, when perfectly formed, attended with the same consequences as the largest, and that the useless state of the limbs is by no means a consequence of the altered figure of the spine, or of the disposition of the bones with regard to each other, but merely of the caries"

Michaud in 1871 fully elucidated the mechanism of paraplegia in Pott's disease, while Thomas Buzzard in 1880 showed that, even in cases with abrupt angular deformity, the compression did not depend upon the distortion of the vertebral canal, but upon inflammatory products lying outside the dura

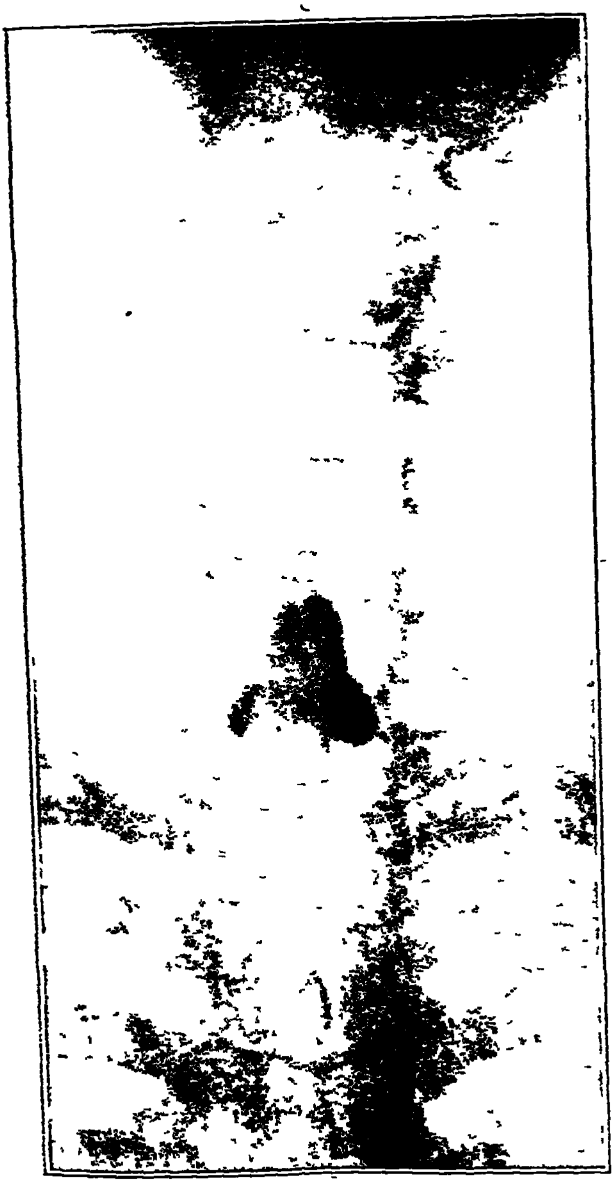
On May 9th, 1883, Macewen in a case of angular curvature of the spine with complete sensory and motor paraplegia, with incontinence of urine and fæces, and of two years' duration, removed the laminæ of the fifth, sixth, and seventh dorsal vertebræ Between the theca and the bone he found a fibrous neoplasm one-eighth of an inch in thickness, firmly attached to about two-thirds of the circumference of the membrane This was carefully dissected off, with the result that improvement began in 24 hours, going on to complete recovery, so that five years after the patient was playing football and other games This case was followed by four others of a similar nature, two of which were successful and two fatal, one a week after operation and the other eight months later from generalised tuberculosis Macewen's success was speedily followed by others, Horsley, White, Abbe, Duncan, Lane Podres, Boeckel and Israel, reporting successful cases, all of which went to show that in the majority of cases the paraplegia is due to an external pachymeningitis with the formation of an extra-dural connective tissue tumour

FIG 1



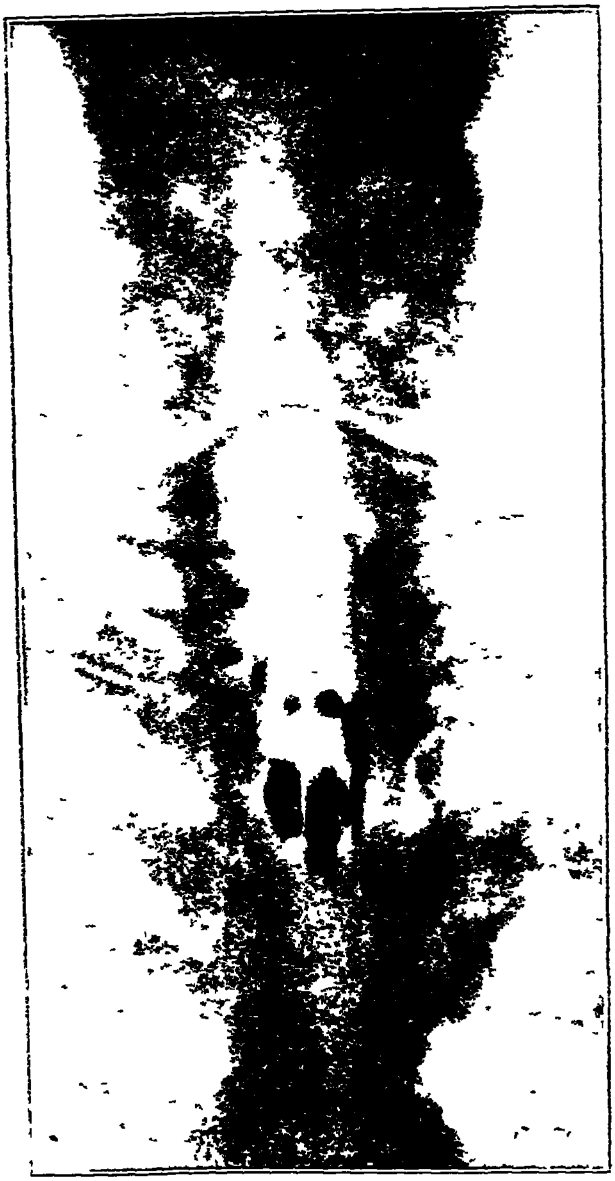
Tumour on which Leyden proposed to operate

FIG. 3.



Intrathecal extramedullary spinal tumour Lipiodol shadow with cupped or crescentic lower border.

FIG. 4.



Meningitis serosa circumscripta Operation 1915, with complete recovery Recurrence of symptoms 12 years later Lipiodol arrested at lower end of the previous laminectomy

aspects of the canal probably held up at the exit of the posterior roots or at the attachments of the ligamentum denticulatum (Fig 4) Radiograms are taken at once after the injection with the patient's head and shoulders raised after cisternal injection and with the patient in the Trendelenburg position after lumbar injection. Should there be a block after cisternal injection additional radiograms should be taken at the end of six hours again in 24 hours and at the end of a week In this way any alteration of the level at which the lipiodol was first checked may be determined

Irritation of Meninges by Lipiodol.

Can the claim that lipiodol is completely non-irritating to the meninges and can be injected with unlimited tolerance be maintained?

Ayer and Mixter found that in animals there was a meningeal reaction which reached its height in from 24 to 48 hours when counts of 1000 cells with moderate increase in the protein-content of the cerebro-spinal fluid were noticed. This reaction subsided gradually, and by the tenth day the fluid was normal I have noticed a distinct meningeal reaction in patients submitted to operation shortly after the injection of lipiodol. The meninges appeared thickened somewhat reddened and agglutinated, while the cerebro-spinal fluid was slightly turbid. Mixter reports a similar condition as does de Martel who however, does not mention the cerebro-spinal fluid Sharpe and Peterson report a case where such an inflammatory reaction occurred from the arrested lipiodol at the site of the spinal block in the mid-dorsal region that the patient's symptoms and signs were aggravated to a degree necessitating its removal five and a half months after by laminectomy The lipiodol was found as two encysted globules surrounded by numerous newly formed adhesions In all their other cases the clinical signs and symptoms were aggravated by the lipiodol injection veins in the spinal canal or from the tumour itself. As the syndrome occurs in conditions other than tumour, the former would appear to be the more acceptable theory.

In passing, I may mention that the upper limit of the sensory loss may be raised higher than that due to the tumour itself by the pressure of this stagnant column of cerebro-spinal fluid, causing a localised ischæmia of the cord

PNEUMOMYELOGRAPHY.

The gradual substitution of the cerebro-spinal fluid in the lateral ventricles by air, followed by an X ray of the head as an aid to the diagnosis and localisation of brain tumour, was first introduced by Dandy of Baltimore, who claims to have increased the percentages of correct diagnosis by 10–35 per cent over those obtained by purely clinical methods This method of direct insufflation of the ventricles with air was followed by the endolumbar method, devised independently by Dandy, Bingel, and Wideroe, which consists of a replacement of the cerebro-spinal fluid by air by means of lumbar puncture

With the patient recumbent but at an angle of 50 to 60 degrees, to allow the air to rise quickly in the sub-arachnoid space 10 c cm of cerebro-spinal fluid are withdrawn by lumbar puncture and an equal amount of air injected In the absence of any spinal block the air passes at once into the cranial subarachnoid space As a result the patient complains immediately of "a fairly sharp pain" first in the posterior, then in the middle, and finally in the anterior part of the side of the head which is uppermost According to Dandy, so constant and characteristic is this pain that it can be taken as positive evidence of the absence of a complete spinal block In the presence of such a block no such pain is complained of Other observers report, in addition to the severe headache, nausea and vomiting, a rise in temperature, and at times collapse, as sequelæ to the endolumbar method If on injection air reaches the head at once no more than 10 c cm is used If, however, it does not pass up into the cranial cavity, Dandy advises the injection of as much air as the spinal canal will hold, in order to obtain the maximum effect of the air shadow for the X ray localisation of the tumour

Apparently air in the spinal subarachnoid space produces no pain comparable to that in the cerebral subarachnoid space, though root pains, unilateral or bilateral, due to the irritation of the air, will radiate along the course of the nerves fixed by a tumour In Dandy's experience, these pains have always localised a tumour when present Fleeting and less constant pains may be experienced also in the absence of spinal block

Liberson in America has devised what he calls "a simultaneous displacement apparatus" for use in the endolumbar method, in support of which he claims that "clinical methods without roentgeno-graphic aid are insufficient for localisation of early brain and cord lesions" As I gather that he is more interested in the roentgenographic than in the neurological aspect of the subject he can scarcely be regarded as an unbiased witness

A very striking commentary upon this method comes from Wideroe, one of its originators He reports 11 cases of spinal block, in none of which was he able to discern any shadow whatever by X rays following endolumbar air replacement, and Eskuken says that, owing to the difficulty of observing anything distinctly, the procedure is often useless

LIPIODOL

Various attempts had been made by Krause, Simons, and others to visualise the spinal theca by means of solutions opaque to the X rays, but without success Sicard and Forestier of Paris succeeded in solving the problem by using an iodised oil called "lipiodol" for cisternal and lumbar puncture Lipiodol, a preparation of poppy-seed oil in which iodine has been incorporated, was originated by La Fay in 1921 and used by him in the treatment of epidemic encephalitis As this substance did not appear especially irritating to the meninges and was opaque to the X rays, Sicard and Forestier tried it with a view to localising spinal cord compression and were successful

There seems to be no marked difference between the French preparation, lipiodol, and its German relative iodipin, as far as radiopacity and physiological effects are concerned The iodine-content is the same in both—i e , 40 per cent. by weight, or 0 45 g per c cm The iodine is not simply in solution but in the form of a fairly stable chemical combination Lipiodol is a transparent oil of an amber yellow colour and high specific gravity (1350) Its radiopacity is due to the high atomic weight (127) of its iodine component, while its heavy density explains its passage by gravity from the cisterna magna to the lumbar cul-de-sac

A more recent modification of lipiodol is the so-called "lipiodol ascendant" or "lipiodol montant" It is lighter than the cerebro-spinal fluid and ascends in the spinal canal when injected into it in the lumbar region The diminution of its iodine-content, however, reduces its value as a radiopaque medium Moreover, it has a tendency to adhere to the meninges in its upward passage, causing difficulty or confusion in the interpretation of the X ray shadows For these reasons we have not found it satisfactory at the National Hospital Peiper has rejected it entirely on similar grounds

Technique

Lipiodol may be injected either into the cisterna magna or into the lumbar canal if the lower level of a block is to be localised No cerebro-spinal fluid should have been removed from the patient for several hours previous to the injection

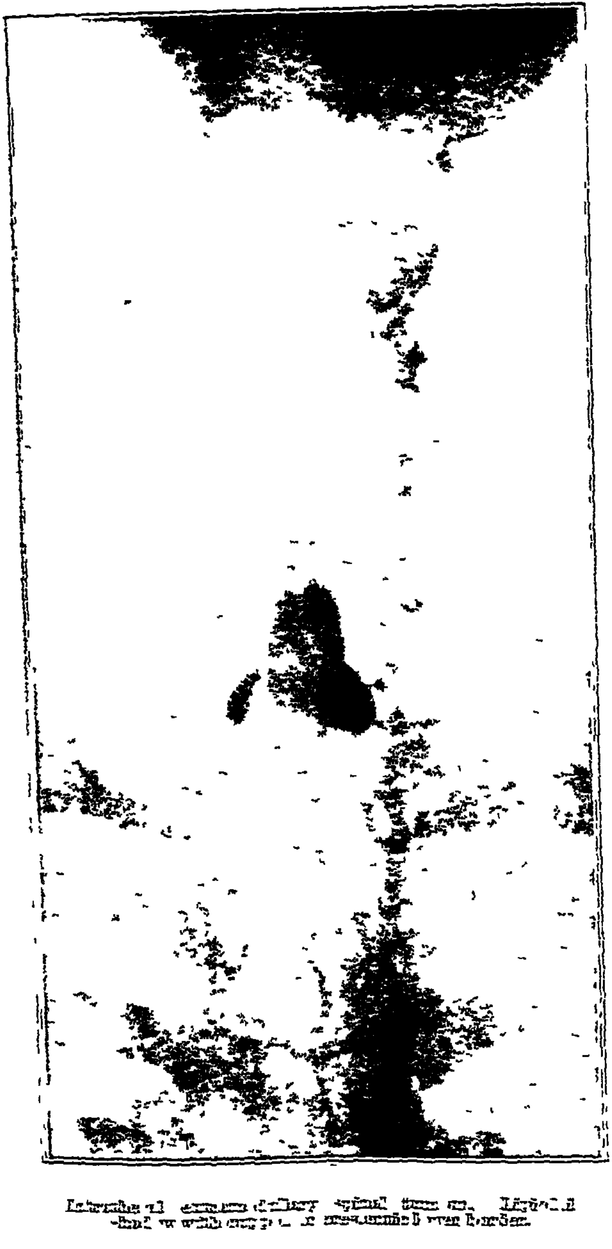
If the injection is into the cisterna magna, it is best and most conveniently done with the patient sitting up in a chair, with the head strongly flexed upon the chest, to open up the space between the occipital bone and the atlas After preparation of the skin, a point, just to one or other side of the ligamentum nuchæ, is taken on a line joining the tips of the mastoid processes If thought necessary, the place of puncture may be anæsthetised with a 2 per cent solution of novocaine It is well to give the patient a hypodermic injection of morphia, gr ¼, an hour previous to the injection. It conduces to a quiet mind in the unusual surroundings of the X ray room and alleviates some of the sequelæ to be described later A spinal puncture needle is entered at the spot selected and pushed steadily forward with a slight inclination upwards in a line with the external auditory meatus and the glabella Should the point come in contact with the occipital bone, the needle is depressed slightly and pushed slowly but steadily through the atlanto-occipital ligament and dura The cessation of all resistance at once indicates that this has occurred Sicard suggests that normal saline solution should be slowly injected as the needle is introduced, to keep the lumen patent, to indicate by the sudden decrease of resistance that the puncture is accomplished, and to remove the medulla from any injury from the entering needle point No cerebro-spinal fluid escapes as a rule, and requires to be withdrawn by a syringe But only a very few drops for the purpose of verification should be withdrawn or allowed to escape Then 1 to 1 5 c cm of the lipiodol is injected slowly, followed by a little warm saline to wash out any lipiodol remaining in the needle The needle is then withdrawn.

One or two points may be emphasised (1) The oil must be clear and transparent Brown or turbid oil has deteriorated and should not be used (2) The viscosity of the oil may be decreased by placing the ampoules in warm sterile water, thus facilitating its injection (3) Care should be taken to see that the syringe is free from air bubbles before the injection. They tend to hold up the lipiodol at the sides of the meninges

The technique for lumbar injection is essentially the same but is best performed with the head and shoulders low and the buttocks well raised

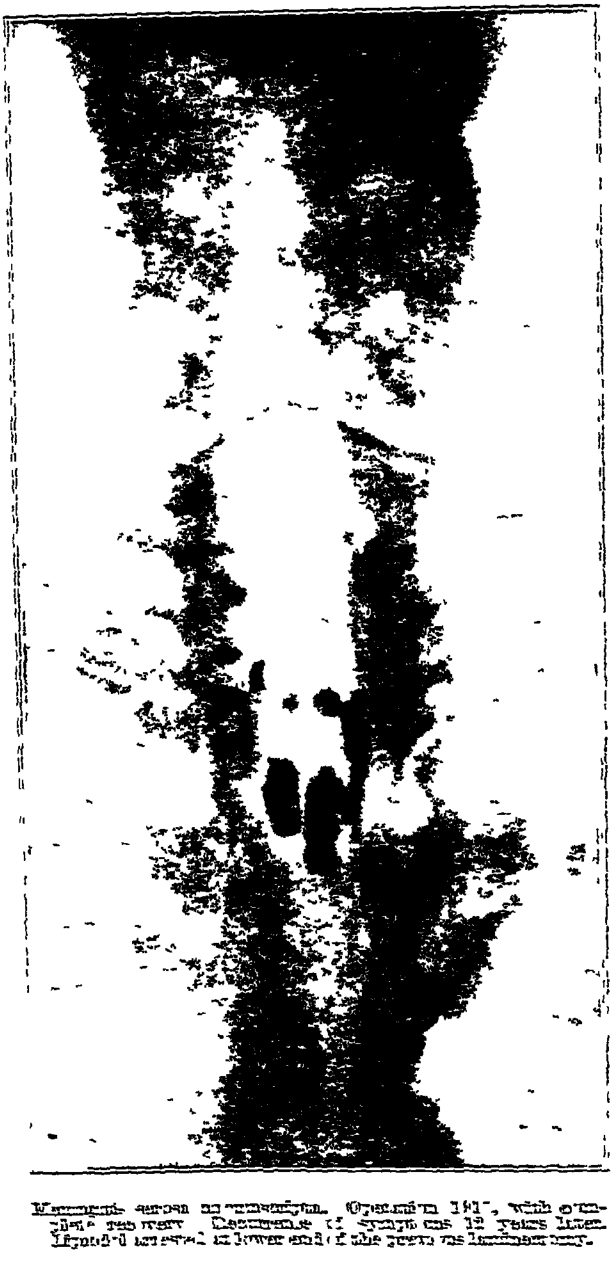
After cisternal injection, and in the absence of any block, the lipiodol reaches the dural cul-de-sac at the level of the second sacral vertebra in a very short time (5–6 minutes) It forms here a large, round, oval or irregular globule Occasionally there may be some delay at the level of the fourth dorsal vertebra, the narrowest part of the canal Frequently small particles of the lipiodol are seen on the lateral

FIG. 3.



Intradural extramedullary spinal tumour. Lipiodol shadow with cupped or crescentic lower border.

FIG. 4.



Meningitis serosa circumscripta. Operation 1915, with complete recovery. Recurrence of symptoms 12 years later. Lipiodol arrested at lower end of the previous laminectomy.

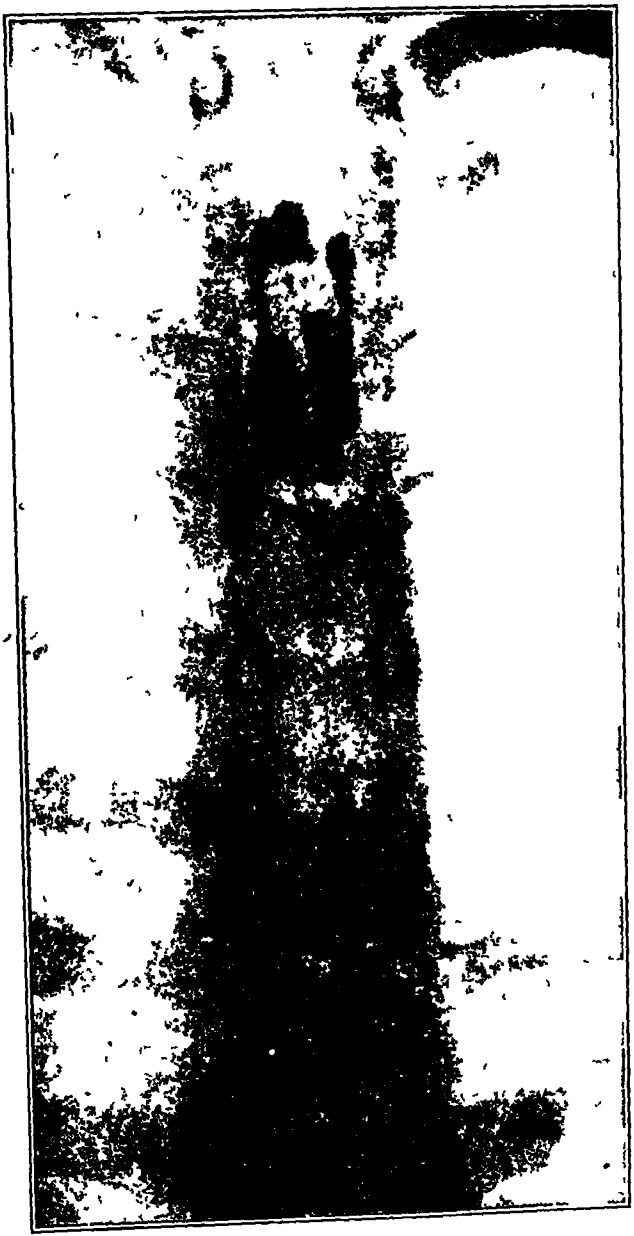
aspects of the canal, probably held up at the exit of the posterior roots or at the attachments of the ligamentum denticulatum. (Fig. 4.) Radiograms are taken at once after the injection, with the patient's head and shoulders raised after cisternal injection and with the patient in the Trendelenburg position after lumbar injection. Should there be a block after cisternal injection additional radiograms should be taken at the end of six hours, again in 24 hours, and at the end of a week. In this way any alteration of the level at which the lipiodol was first checked may be determined.

Tolerance of Meninges to Lipiodol.

Can the claim that lipiodol is completely non-irritating to the meninges and can be injected with unlimited tolerance be maintained?

Ayer and Mixter found that in animals there was a meningeal reaction which reached its height in from 24 to 48 hours, when amounts of 1·0 c.cm. with moderate increase in the protein-content of the cerebro-spinal fluid were noticed. This reaction subsided gradually, and by the tenth day the fluid was normal. I have noticed a distinct meningeal reaction in patients submitted to operation shortly after the injection of lipiodol. The meninges appeared thickened, somewhat reddened and agglutinated, while the cerebro-spinal fluid was slightly turbid. Mixter reports a similar condition, as does de Martel, who, however, does not mention the cerebro-spinal fluid. Sharpe and Peterson report a case where such an inflammatory reaction occurred from the arrested lipiodol at the site of the spinal block in the mid-dorsal region that the patient's symptoms and signs were aggravated to a degree necessitating its removal five and a half months after by laminectomy. The lipiodol was found encapsulated in cysts, surrounded by masses of newly formed adhesions. In all the other cases the clinical signs and symptoms were aggravated by the lipiodol injection.

FIG. 5



Intrathecal extramedullary spinal tumour Lipiodol shadow with small cupped or crescentic lower border

FIG 6

Extrathecal spinal tumour with sensory lipiodol dissociation Sensory level at the fourth dorsal segment Lipiodol arrested between the fifth and sixth dorsal vertebræ The tumour lay beneath the lower part of the lamina of the sixth dosal vertebra

Moniz of Lisbon reports these sequelæ following upon lipiodol injection in a case of hypertrophic meningitis associated with cavity formation in the cord

"The next day the patient complained of a sense of constriction in the upper part of the chest and diminished power in the upper limbs He could not flex nor extend the fingers, lost the power of flexion of the forearms and movements of the arms and shoulders He had for several days movements which resembled myoclonic contractions in the arms and forearms Examination revealed that a very slight hypoæsthesia reached to the middle of the neck These symptoms passed off in three weeks"

Moniz attributes them to a local irritation caused by the lipiodol and thinks they are determined by the local state of the meninges and cord He has also seen similar, but less intense, phenomena in cases of meningitis serosa circumscripta He thinks such sensori-motor disturbances following the injection of lipiodol point to a diagnosis of pachymeningitis

At the National Hospital, following upon the injection of lipiodol, there has been found commonly (1) Increase in the root-pains at the site of the lesion, lasting for some hours (2) General soreness and stiffness of the back muscles (3) Headache (4) Rise in temperature Less commonly, there has been increased difficulty in micturition in cauda equina lesions In a case which eventually proved to be one of disseminated sclerosis, injection of lipiodol gave rise to pain on one side of the face, twitching of the left arm and leg, with sensation of pins-and-needles in the left leg These symptoms lasted for 24 hours

Ebaugh and Mella, who have investigated the subject, find that pains in the legs occurred in 30 per cent of patients, rise in temperature (101 6°) in 23 per cent, nausea and headache in 7 per cent, leucocytosis in 30 per cent, pleocytosis in 60 per cent, and sleeplessness and restlessness were "frequent" From the cellular increase in the cerebro-spinal fluid the increase in the protein-content, and the frequent presence of blood on lumbar puncture (27 per cent) they conclude that as a result of the lipiodol injection an aseptic chemical meningitis is produced These local and systemic symptoms usually disappear after a few days without apparently any permanent effects

Forestier maintains that any severe sequelæ are not due to the lipiodol but to the puncture alone He does not think that the lipiodol should be regarded as a permanent foreign body, because even if it takes a long time to be absorbed the absorption is at any rate continuous by means of a normal histological reaction

Interpretation of the Results Obtained.

How much reliance can be placed upon lipiodol localisation? A correct interpretation of the X ray films is of paramount importance. The lipiodol may move slowly, or even be held up for a short time, the false arrest ' of French writers Such temporary arrest may take place, as before mentioned, at or about the level of the fourth dorsal vertebra, and in small rounded masses at irregular intervals on the walls of the spinal canal. These latter are of little or no significance. Laplane thinks that ' false arrest " can be differentiated from true arrest by the shape of the shadow and by its fixation In the latter the lipiodol has stopped owing to a real obstruction, and reversal of the patient s position will cause it to flow away again In false arrest on the contrary, the lipiodol has become adherent to the meninges or nerve roots, and will not alter its position on reversal of the patient.

It would be of great importance if the shape of the lipiodol shadow could give any indication as to the nature of the lesion or process involved. Mixter thinks that it can and says that a cap or crescent, complete or incomplete, means an extramedullary tumour, or Pott s disease with an intraspinal abscess: while narrow lines of lipiodol at either side with an irregular mass above suggest a fusiform enlargement of the cord itself. (Figs. 3 and 5) But the consensus of opinion does not support him. Eskuchen in Germany and Piccinnino in Italy hold that it has not proved possible, as was at first hoped, to draw any conclusion from the form of the lipiodol shadow as to the nature of the process involved

On this point the findings of Mme. Sorell-Dejerine, with reference to paraplegia in Pott s disease are most interesting and instructive. In cases in which the paraplegia had been transitory, probably from œdema or vascular disturbances the transit of the lipiodol was normal In cases cured of the paraplegia, which had been associated in its development with an intravertebral abscess, there persisted a slight hold-up at the level of the original lesion but this was only transitory and after a few days all the lipiodol was found in the dural cul-de-sac. In a developing paraplegia associated with an intravertebral abscess there was a lipiodal arrest, the lower limit of which was not horizontal, but had one or several prolongations This arrest persisted as long as the paraplegia was stationary When the compression regressed the lipiodol progressively fell as the subarachnoid space became freer. In old cases of paraplegia associated with a pachymeningitis the lipiodol arrest persisted with a distinct and horizontal lower border

Moniz describes the unusual and interesting behaviour of lipiodol in a case of hypertrophic pachymeningitis with cavity formation in the cord

> The lipiodol had never become fixed during the course of three months An hour after injection it was arrested at the level of the atlas and axis, but 24 hours later it had become elongated and showed a tendency to divide into two parts The next day it had divided one part remaining in the original place the other lying between the third and fourth cervical vertebræ with a small piece at the fifth. Nine days later the detached portion had progressed in chain formation as far as the seventh cervical and upper dorsal vertebræ. Ten days later or 20 days after the injection, none of the lipiodol had reached the cul-de-sac. In the cervical region there were large scattered drops, but it lay mostly at the level of the fourth and fifth dorsal vertebræ, with some also in the lower dorsal region.
>
> Three months afterwards, scattered droplets of varying size were found in the cervical region and in smaller numbers at the level of the first and second dorsal vertebræ The lipiodol which had descended started from the fifth dorsal, but was more compact at the level of the tenth, eleventh, and twelfth dorsal where it had taken the form of a stalk occupying the mid-region with slight interruptions in its length.

Negative Findings

Babinski and Vincent have raised the question of the value of negative findings with lipiodol Can medullary compression be excluded with a negative lipiodol result? Assuredly not Ayer holds that fluid findings by his combined method may be normal in every respect even in the presence of compression of the cord. He quotes in support of his thesis a case in which a multilocular epidural cyst was found at subsequent operation Carmichael has recently seen in London a spinal tumour at the level of the ninth dorsal segment removed from a patient in whom the lipiodol findings were absolutely negative. Wilfred Trotter informs me that he has operated on cases in such an early stage that the lipiodol transit must have been uninterrupted In 1925 I operated on a patient of Gordon Holmes who had localised a tumour three months after the onset of root-pain. Here the very small size of the tumour could not possibly have interfered with the descent of the lipiodol. There is no doubt that with small tumours, or in rare cases where narrowing of the cord results from destructive new growths such negative results will occur Yet, like other French enthusiasts, Forestier says that the great diagnostic value of lipiodol is that it reveals spinal compression long before sensory changes or paraplegia appear.

De Martel reports four cases with arrest of lipiodol at a definite level for which he could find no adequate reason at the time of operation. In two of them it would appear that the lipiodol arrest was the only indication for operating.

Conflicting Evidence.

Again cases occur in which the neurological and lipiodol levels do not correspond. In other words, there is a sensory-lipiodol dissociation. In some the sensory level is higher than that of the lipiodol arrest. (Fig 6)

> Such a one occurred in the service of Grainger Stewart at the National Hospital in 1925 There was complete anæsthesia and analgesia up to the level of the fourth dorsal segment with a band of hyperesthesia. Lipiodol showed an arrest between the fifth and sixth dorsal vertebræ On removing the second third and fourth dorsal laminæ no pulsation of the cord was visible. On opening the dura, the cord presented without pulsation, enveloped in a cystic formation of milky arachnoid membrane, which appeared to be widespread The spinal veins were varicose and tortuous Above the level of the fourth dorsal segment the cord pulsated.
>
> In the belief that the condition was a circumscribed serous meningitis, the adhesions were freed as far as possible and the wound closed. No improvement followed, however, and the patient died
>
> As a result of the autopsy, Dr J G. Greenfield reported "a tumour the size of a large broad bean compressing the left posterior region of the cord but lying altogether outside the dura. It lay between the left sixth and seventh dorsal transverse processes and passed forwards slightly in the intercostal space being attached to the left sixth dorsal root. The laminectomy wound ceased at the fifth dorsal spine and transverse processes and as the tumour lay under the lower part of the lamina of the sixth dorsal vertebra, it had not been found ' Microscopically, it proved to be a neurofibroma.

And again the lipiodol may be arrested at a point two or three segments higher than the sensory level Souques noted in one of his cases an error of three segments and Moniz in one of his an error of two segments

In the one case the sensory-lipiodol dissociation may be explained on the assumption that the higher sensory level is due to the pressure of the stagnant fluid above the tumour and a localised ischæmia of the cord In the other, the lipiodol may be held up by meningeal adhesions above a tumour, or, in a case of meningitis serosa circumscripta, at a level higher than the place where actual compression of the cord begins

Given a sharp sensory level I much prefer to depend upon it alone and to operate without the use of lipiodol One has then a clean operative field within the canal, where a clear vision is of such a great preliminary advantage, and the clean and rapid removal of the tumour, or the separation of adhesions is not impeded by the dirty mess resulting from the lipiodol It is in cases, in which the sensory level is not sharp and well defined, but gradually fades away as one passes upwards, that lipiodol has its greatest field of usefulness

The Place of Myelography in Diagnosis

It is not to be wondered at that any means which can be readily and easily applied, and is thought to provide a royal road in such a difficult field as the diagnosis and accurate localisation of spinal cord compression, should have been eagerly seized upon and widely exploited This has happened with lipiodol. Yet it is surprising that from the home of labour-saving devices, America, there should arise such widespread and emphatic warnings against its indiscriminate use and abuse

Mixter, of Boston, says —

> "In the practice of medicine we must look more or less askance at any new diagnostic procedure which may carry a considerable element of danger For this reason it is wise to consider carefully the use in the cerebro spinal space of a substance opaque to the roentgen ray."

Schmidt, of Denver, has just recently summarised his views on the use of lipiodol in the following words —

> "The problem of myelography may be considered solved as far as the principles and the technique of the method are *concerned*, *it is not solved as far as the contrasting medium* is concerned Both iodized oils available at the present time, lipiodol as well as iodipin, should be used only under the strictest observation of indications and precautions"

Even Dandy, one of the originators of the endolumbar air replacement method of localisation, acknowledges that a correct diagnosis and localisation of spinal tumours can be made in over 90 per cent of cases by a "painstaking neurological examination"

I consider myself very fortunate in being attached to a hospital for nervous diseases, where the art and science of diagnosis and localisation have reached an extraordinarily high level I find that in the last five years 98 per cent of our cases of spinal tumour have been correctly localised by such painstaking neurological examination For this reason one has had to have less recourse to what I may call artificial aids to diagnosis and localisation than might have been necessary under different circumstances

In conclusion, I would formulate the following rules regarding the use of lipiodol in the diagnosis and localisation of spinal cord compression —

1 Its use should in no way usurp the place of careful and repeated systematic clinical examinations of the patient, especially with reference to a sensory level combined with laboratory tests of the cerebro-spinal fluid Recourse to it as a labour-saving device and a short cut to diagnosis and localisation cannot be too strongly deprecated

2 It should only be used after a subarachnoid block has been first demonstrated by the combined cistern-lumbar puncture method introduced by Ayer

3 It should not be used unless the possible dangers and complications are outweighed by the more exact localisation likely to be obtained

4 Finally, in properly selected cases we have in lipiodol a definite aid in the study of spinal cord compression, which, if used intelligently, will increase definitely our successful removal of spinal cord tumours at an earlier stage in the course of the disease, and thereby increase our percentage of cures and reduce our operative mortality

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DR William Seaman Bainbridge, New York, has been decorated with the Cross of the Order of *Polonia* Restituta by the Polish Ambassador to *Washington*

THE Association of Bad-Nauheim Doctors has re-issued an illustrated booklet in *English*, describing the treatment given at the Spa and the types of disease for which it is suited Copies may be had from the *Association.*

CARDIOSPASM.

By JOHN MORLEY, Ch M. Manch., F.R C S Eng ,
Hon consulting surgeon, Ancoats Hospital; Hon. assistant surgeon, Manchester Royal Infirmary, lecturer in applied anatomy, Manchester University

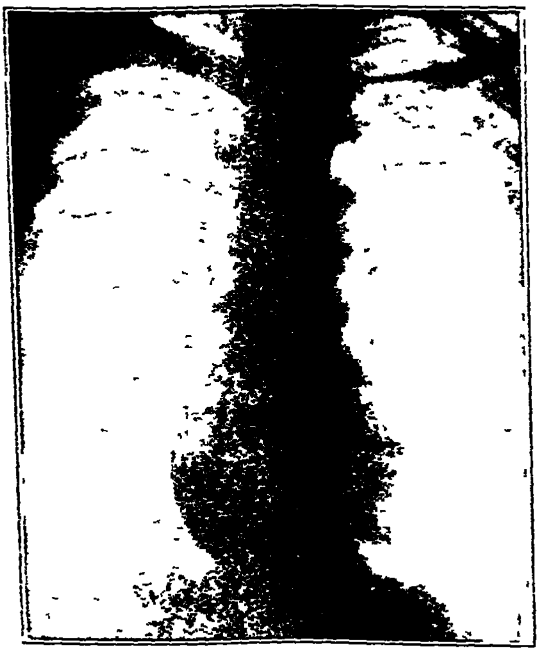
The various terms under which this remarkable condition has been described—viz , cardiospasm, achalasia of the œsophagus, idiopathic dilatation of the œsophagus, phrenospasm, hiatal œsophagismus indicate how little is known with regard to its essential nature and causation Before entering upon a brief discussion of these problems it will be convenient to describe in some detail a few illustrative cases

Clinical Records

Case 1 —A. H , a married woman aged 44, began to suffer from pain under the sternum eight years ago, at the age of 36 This pain was noticed immediately after a meal. After a few months she became conscious of difficulty in swallowing and fluids presented quite as much difficulty as solid food X ray examination at Ancoats Hospital, when the symptoms had persisted for one year, showed a great ballooning of the œsophagus, which the radiologist considered to be due to an organic stricture. There was, however, no history of swallowing a corrosive fluid, while the radiographic appearance did not suggest carcinoma. Attempts to pass bougies into the stomach proved unsuccessful, and were not persisted in for fear of penetrating the ballooned œsophagus Under a general anæsthetic I performed a gastrotomy and found that I was able to pass a full-sized bougie from the stomach up through the cardia with the greatest ease.

After this operation it was found possible to pass a large bougie into the stomach from above, and this was carried out at frequent intervals for some months For the first 12 months after operation the swallowing was much better

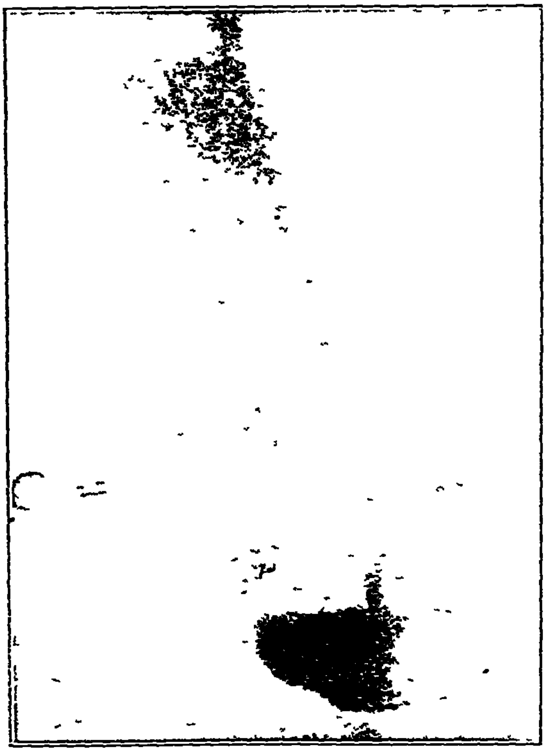
Fig. 1



Case 1 —Showing barium meal held up in lower end of œsophagus

After that period the pain and dysphagia returned, and have troubled her more or less ever since. Of late years she has obtained little relief from the passage of bougies When she feels the food obstructed there is severe retrosternal pain, which is only relieved by "vomiting" up the contents of her œsophagus She states that she brings up a large amount of slimy stuff—so much, in fact, that she does not know where it all comes from. She is thin, but for the last six years her weight has remained constant. The present state of her œsophagus is shown in Fig. 1, in which some barium porridge is seen held up on the lower end of the greatly dilated œsophagus. In Fig 2 a mercury tube has been passed into the stomach. The tube was guided through the cardia under the fluorescent screen, and its passage into the stomach excited considerable retching and nausea.

Fig. 2.



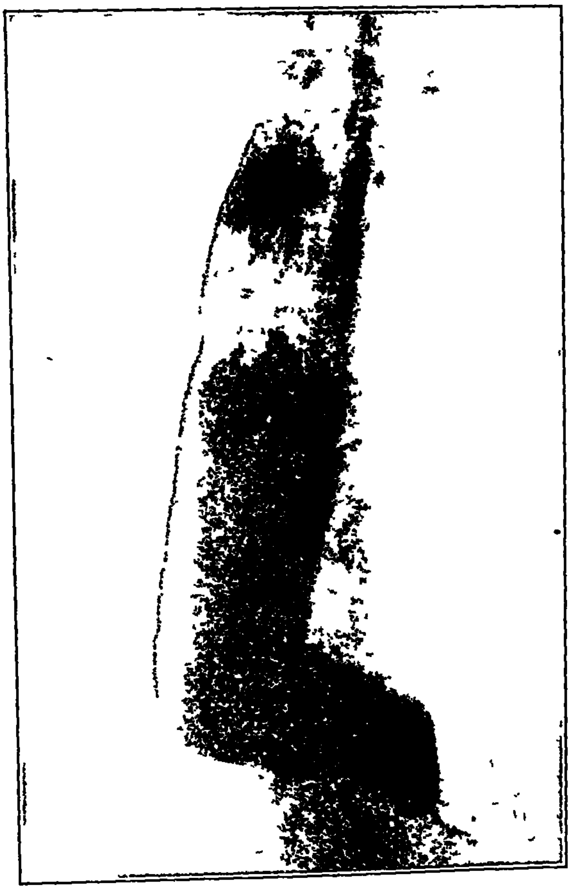
Case 1.—Showing mercury tube passed into stomach (lower shadow), with some barium still held up in lower end of dilated œsophagus

Case 2 —M. M. a married woman aged 25, was admitted to the Royal Infirmary under my care on Feb 6th, 1925, complaining of difficulty in swallowing The trouble began at the age of 14, when for no apparent reason she began to "vomit" after each meal. For a period of about two months she had to get up from the table regularly, and returned most of her food unchanged. One day, feeling that the food was lodging in her throat she found that by pressing her finger-tips deeply into the suprasternal notch, leaning forward, and making a forcible effort to swallow, she could push the food down into the stomach and obviate the ' vomiting" Since learning this trick she has never ' vomited," but at the end of a meal a mouthful or two of food will sometimes regurgitate into her mouth. She can usually succeed, by making a forcible effort in the manner described above in propelling the greater part of a meal down into the stomach. When she does so she is conscious of a sense of relief, though she complains of no actual pain while the food is held up in the œsophagus Her weight has kept fairly constant, and is now 7st 4½ lb The dysphagia never varies from day to day, unless she has a cold, when it is usually a little worse.

Previous Medical History—She suffered from "bilious attacks" with headaches when a young girl, but not since she grew up Menstruation began at 16 She married at 21 and has had three children She had no unusual amount of morning sickness in any of the pregnancies, and the dysphagia was neither better nor worse during pregnancy and puerperium. The family history revealed nothing of importance.

Condition on Admission—The patient was a small, spare young woman intelligent but decidedly not neurotic with a slight prominence of the thyroid. The prominence was found to depend on the presence of food in the dilated œsophagus, as it disappeared after washing out the œsophagus X ray examination (Fig 3) showed enormous dilatation of the œsophagus throughout its whole length Practically all the barium porridge was held up by the cardia, and the œsophagus showed increase in length as well as in width, so that it was coiled up above the diaphragm in an S shape When the patient pressed on her suprasternal notch and made a violent effort to swallow, a considerable amount of food, perhaps half the contents of the œsophagus, was forced into the stomach

FIG 3.



CASE 2 —Barium in dilated S shaped œsophagus

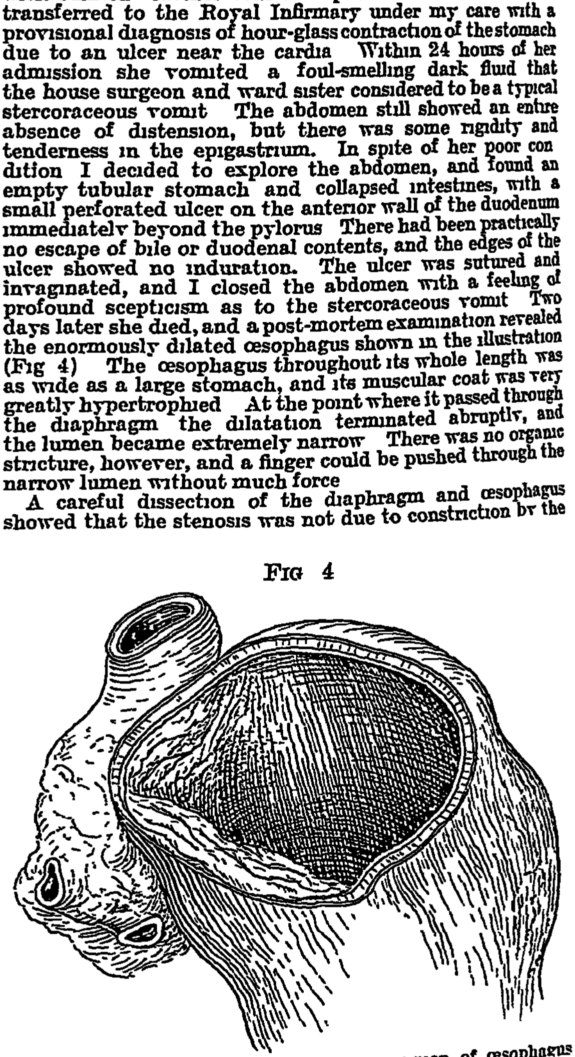
An attempt was made to guide a Hurst's mercury tube through the cardia while the patient stood upright behind the fluorescent screen The tube curled up in the ampulla of the œsophagus without engaging in the cardia, and as it caused much retching, the attempt was soon abandoned. For the next week the œsophagus was washed out daily with a stomach-tube and funnel, and the patient learned to tolerate the passage of the tube without retching At the end of a week a second attempt was made with the mercury tube Seated behind the fluorescent screen the patient herself lowered the tube down the œsophagus The first attempt was unsuccessful, and the tube was coiled up in the lower end of the gullet The tube was then withdrawn a little, and the patient was asked to lean sideways towards the left The end of the tube was seen to engage in the cardia, which, after holding it up for a short time, relaxed under its weight and allowed it to slip through into the stomach Its passage into the stomach caused a violent attack of retching and vomiting The tube was easily withdrawn The next day the patient found that she could herself pass the tube into the stomach without difficulty She is now at home, and has been given a mercury tube to use daily

CASE 3 —H E, a married woman aged 39, was admitted to St Mary's Hospital, Manchester, on Jan 22nd, for what was considered to be hyperemesis gravidarum She was six months' pregnant She gave a history of intermittent epigastric pain after food and sickness for the last 16 years She had had one full-term baby, and had suffered considerably from sickness during that pregnancy The vomiting during the present pregnancy had been persistent from the third month, and for the last month before admission had been very severe Latterly she had vomited as many as 20 times a day, and had been unable to retain even fluids

Her condition on admission was one of extreme weakness and emaciation and she vomited after every drink On the third day after admission she had a complete spontaneous abortion, but without any relief as regards the incessant vomiting I was asked to see her five days after the abortion. She was then in a desperately weak condition, emaciated, with sunken features and a scaphoid abdomen She was transferred to the Royal Infirmary under my care with a provisional diagnosis of hour-glass contraction of the stomach due to an ulcer near the cardia Within 24 hours of her admission she vomited a foul-smelling dark fluid that the house surgeon and ward sister considered to be a typical stercoraceous vomit The abdomen still showed an entire absence of distension, but there was some rigidity and tenderness in the epigastrium. In spite of her poor condition I decided to explore the abdomen, and found an empty tubular stomach and collapsed intestines, with a small perforated ulcer on the anterior wall of the duodenum immediately beyond the pylorus There had been practically no escape of bile or duodenal contents, and the edges of the ulcer showed no induration. The ulcer was sutured and invaginated, and I closed the abdomen with a feeling of profound scepticism as to the stercoraceous vomit Two days later she died, and a post-mortem examination revealed the enormously dilated œsophagus shown in the illustration (Fig 4) The œsophagus throughout its whole length was as wide as a large stomach, and its muscular coat was very greatly hypertrophied At the point where it passed through the diaphragm the dilatation terminated abruptly, and the lumen became extremely narrow There was no organic stricture, however, and a finger could be pushed through the narrow lumen without much force

A careful dissection of the diaphragm and œsophagus showed that the stenosis was not due to constriction by the interlacing fibres of the right crus of the diaphragm, but to a contraction of the circular muscle-fibres of the œsophagus The circular coat was not thicker at the point of constriction than in the hypertrophied wall above this joint

FIG 4



CASE 3 —Drawing from post-mortem specimen of œsophagus cut transversely Contrast with section of normal trachea on left

CASE 4 —F J C, male aged 36, began to suffer from dysphagia seven years ago It became so severe that he lost weight rapidly, and when he first consulted me six months after the onset he was nearly 2 st below his normal weight of 11 st After his meals, especially if he bolted his food, he would feel a choking sensation, and would have to return the meal X ray examination at that time showed bismuth held up in the œsophagus, with a moderate degree of dilatation The passage of full sized bougies brought immediate relief He began to put on flesh and soon regained his normal weight The swallowing is still not normal, however Occasionally if he bolts his food it will stick as before, and a recent bereavement brought some increase in the dysphagia He has always more trouble with fluids than with solids, and hot drinks pass down more readily than cold He feels that the drink "meets some wind" in the gullet and at first lies above the wind Then he brings up wind and the food at once goes down into the stomach Examination by X rays showed that the barium was held up for some minutes above the cardia, and that the œsophagus above the barium contained a long column of air Then came a sudden wave of contraction

down the œsophagus and the column of air, acting like a ramrod, seemed to thrust the food on into the stomach At the same time a spasm of the upper sphincter of the œsophagus relaxed and the air was belched up, with an immediate sense of relief to the patient

Ætiology

The condition illustrated by the four cases described above is found, as a rule, in females and arises during early adult life Although there is no well-defined anatomical sphincter at the lower end of the œsoghagus at all comparable with that controlling the pyloric outlet, there can be no doubt as to the presence of a physiological sphincter It is a persistent failure of this cardiac sphincter to relax, both during and after the process of deglutition, that gives rise to these remarkable symptoms Hurst[1] prefers the term cardiac achalasia (or non-relaxation) as being more accurate than cardiospasm He argues that there can be no real spasm, as a mercury tube when once passed can readily be withdrawn without any apparent grip on the part of the sphincter, while in cases that have come to post-mortem examination there is no hypertrophy of the contracted circular muscle-fibres A sphincter, however, that can hold up for an indefinite period a column of food eight or more inches in height, often against the full force of violent peristaltic contractions of the œsophagus, is in a state of highly abnormal tonic contraction, for which I think the older term cardiospasm has much to recommend it

As to the essential cause of the spasm we know as singularly little as is known of the spasm of the upper sphincter, which often precedes the formation of a pouch To describe it as an incoordination of the neuro-muscular control of deglutition only leads us to ask what causes this *incoordination*, and to that question we can as yet give no reply It is necessary to emphasise the point that these patients are by no means of a neurotic or hysterical temperament The theory of Chevalier Jackson that the obstruction is due to a spasm of the right crus of the diaphragm must be rejected, since division of the right phrenic nerve in cases of cardiospasm has failed to affect the obstruction Recorded cases in which degeneration of the vagi has been found are exceptional and atypical Some evidence of hyperæsthesia of the cardiac mucosa may be inferred from the very violent retching that occurred in two of my cases when the mercury tube passed through the sphincter into the stomach Association with pregnancy appeared to have a profound effect in my third case, though the symptoms had been present in some degree for many years It is important in this connexion to note that Vinson[2] has reported from the vast resources of the Mayo Clinic six cases of œsophageal stricture following the vomiting of pregnancy Though his report does not make clear the nature of the stricture in all the cases, it would appear that in some, at any rate, it was spasmodic

Diagnosis and Treatment

The diagnosis is made in part by the clinical history, as the absence of corrosive poisoning will eliminate the ordinary fibrous stricture, while the long duration of symptoms, the greater trouble with fluids than with solids, and the age of the patient will often help to exclude carcinoma The radiographic appearance, however, is characteristic, and should always make the diagnosis plain

Until we know the real cause of the condition *treatment* must be essentially palliative Plummer[3] passes his hydrostatic dilater into the cardia, guided by a previously swallowed thread He has reported a large series of cases with a high proportion of successful results The method, however, is painful, and, according to Hurst, not free from danger The introduction by Hurst of a mercury-filled rubber tube was a real advance in the treatment It should be passed first by the surgeon under the fluorescent screen, and the patient may then pass it herself, at first before each meal, and then at such gradually increasing intervals as the result may demand R P Rowlands, in a case of Hurst's[4] that resisted treatment by his tube, performed a kind of Rammstedt's operation, dividing the muscular coat of the entire cardiac sphincter longitudinally, with a satisfactory result Lambert,[5] in 1914, recorded a case in which he enlarged the œsophageal opening in the diaphragm, drew down part of the dilated œsophagus, and performed an œsophagogastrostomy P. Bull[6] has recently recorded four cases of œsophagogastrostomy by the abdominal route, with very good results It is an operation of severity and considerable risk, and I have so far no personal experience of it, but for the worse type of case in which the spasm will not yield to the simpler method of dilatation by the mercury tube it may acquire an established place in the surgical treatment A simpler procedure, originally advocated by Mikulicz, consists in performing gastrotomy, and dilating the cardia digitally through the open stomach This method has received recent support from Walton,[7] who reported a highly *successful series of cases* Though by no means free from risk, it must be regarded as less dangerous than œsophagogastrostomy Until this method has been tried more widely, and sufficient time has passed to assess the permanence of the relief it affords, a final judgment as to its value must be withheld

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A CASE OF
SEVERE ANÆMIA OF PREGNANCY
SIMULATING ADDISON'S ANÆMIA.

BY T JENNER HOSKIN, M D CAMB, M R C P LOND,
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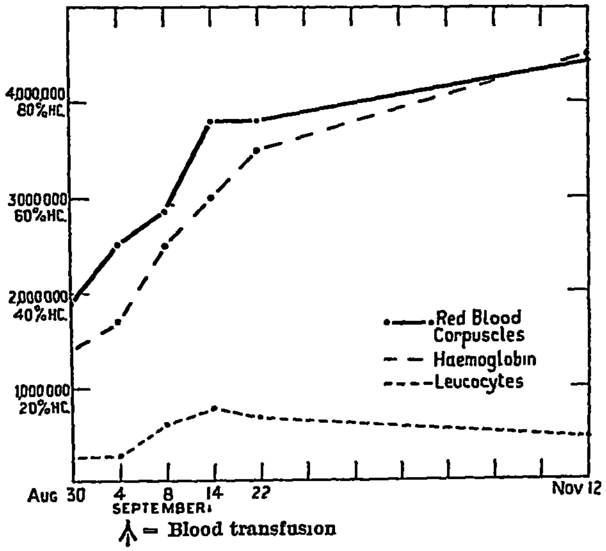
AND
ENID CEIRIOG-CADLE, M B, B S LOND.,
HOUSE PHYSICIAN, ROYAL FREE HOSPITAL.

THIS condition is extremely rare in England, but has been described in the United States, and is not uncommon in Northern India It was first described by Walter Channing in 1842[1] He distinguished it from anæmia due to hæmorrhage, and discussed its dangers, his cases had a high mortality He discussed the possible benefits of blood transfusion. Osler[2] described a severe progressive post-partum anæmia unassociated with hæmorrhage, some cases had high fever suggesting typhoid, but all recovered He found the condition extremely rare in England Larrabee[3] described 15 cases of post-partum anæmia, seven with the secondary type, and eight with the pernicious type of blood picture The secondary anæmias were more common in multiparæ, and all these gave a history of anæmia, hæmorrhage, or definite severe infection associated with previous pregnancies

In five of the cases of the pernicious type the onset was after delivery He found the influence of previous pregnancies was less marked than in the cases of secondary anæmia The cases of pernicious type averaged 22 4 per cent hæmoglobin, with 930,000 red cells, blood cells, and colour-indices from 0 67 to 1 54, in only two cases was the colour-index less than one Abnormal red cells were always present The white cell-count varied *from 10,200* to 1800, averaging 5500; four cases had a relative lymphocytosis Five of these cases had sore mouths and two had fever, in five the spleen was palpable and the liver in two Two premature infants were stillborn, the six full-term babies were perfectly healthy

Larrabee recommends treatment by a single blood transfusion; of his eight cases, the four who had been transfused recovered, whilst three of the others died Smith[4] described eight cases of a pernicious type of anæmia with achlorhydria, associated with pregnancy occurring in women from 18 to 34, including two primiparæ Leucopenia was noted in seven of his cases and stomatitis in three Five of his cases had blood transfusions, and two, of whom one had been transfused, died He recommends repeated blood transfusions and treatment with dilute HCl, as he considers the achlorhydria the main ætiological factor



With regard to prognosis, Galloupe and O'Hara[5] state that the anæmia recurs with increasing severity in later pregnancies, but Larrabee and Osler describe cases of subsequent uncomplicated pregnancies

The ætiology of this condition is obscure Adler[6] considers that the condition occurs in predisposed women, but has no relation to Addison's anæmia Rowland[7] states. "A syncytial hæmolysin is produced in the ectodermal cells of the chorion Later an antihæmolysin is found in the maternal blood, failure in the formation of which results in persistent anæmia" Hein[8] considers Addison's anæmia very rare in pregnancy

Clinical Record

Mrs A B, aged 30, was admitted to hospital on August 28th, 1926, under the care of Dr Hoskin, complaining of fever and pallor

History —Previously a healthy woman, she had lived in India for the last three years, she had never had malaria or other fever, but during the hot weather had had occasional attacks of diarrhœa, with three or four large pale stools a day, such as occur in sprue Four weeks before admission she had a perfectly normal confinement, a full-term healthy baby, and no excessive hæmorrhage For five weeks previously she had complained of breathlessness and great fatigue which was attributed to her pregnancy Fatigue, breathlessness, and pallor increased rapidly after confinement For a week she had been feverish and complained of a heavy feeling in the left axilla, misty vision, and black specks in front of her eyes

Condition on Admission —Temperature, 103° F ; pulse, 130, respirations, 55 Marked pallor, with almost colourless lips and mucous membranes Tongue coated, teeth good, no oral sepsis Abdomen A tender spot opposite the right ninth costal cartilage Liver just palpable, spleen easily palpable; right kidney easily palpable and rather tender Heart Area of cardiac dullness not increased, first sound poor in all areas, and accompanied by soft systolic murmur with maximum intensity at the base of the heart Blood pressure 116 A provisional diagnosis of infective endocarditis was made.

After admission the patient vomited occasionally for three days; on the fourth day the temperature fell to normal The following investigations were carried out

Blood-count —Red cells, 1,870,000, hæmoglobin, 28 per cent; colour-index, 0 8 White cells, 2600, polymorphonuclears, 68 per cent Anisocytosis, poikilocytosis, and diffuse basophile staining were present Normoblasts, megaloblasts, and myelocytes were seen

Fractional Test-meal —Complete achlorhydria

Urine —Specific gravity, 1015 No albumin, sugar and acetone a trace Bile present Urea, 1 3 per cent, total nitrogen, 99 per cent per 100 c cm, urea nitrogen, 0 68 mg per 100 c cm, ammonia nitrogen, 0 030 mg per 100 c cm, urea coefficient, 70 ammonia index, 3 1, diastase, 33 3 There was no indication of kidney or liver inefficiency Van den Bergh's test—positive, delayed, direct and indirect reactions, indicating hæmolysis

Stool —A few red blood-cells No protozoa or excess of streptococci present Retinoscopy (Mr Malcolm Hepburn's report) Several large hæmorrhages in both fundi near the disc No white edges of pigmentation of the hæmorrhages Vessels healthy, except for slight dilatation of the veins The hæmorrhages are retinal in origin and due to a blood rather than to a vascular condition

These findings suggested a severe anæmia of the pernicious type and are similar to those associated with pregnancy as described by Larrabee and C T Smith, and the case was treated on similar lines

Treatment and Progress

Blood Transfusion —500 c cm of blood were transfused by the citrated method on Sept 7th, 1926 Two hours later the patient had a severe rigor, but subsequently her condition improved rapidly Fraise's iron injections—1 c cm was given daily Acid hydrochlor dil in 1 drachm doses was given three times a day in lemonade with meals, this dose was not tolerated owing to development of a sore tongue, and 15-minim doses were given, later this was increased to half a drachm

The general condition improved rapidly, appetite was good The vision improved gradually, the hæmorrhages were slowly absorbed Below is a list of blood counts.

Date in 1926	Red cells	Hb %	Colour-index	White cells	Remarks
Aug 28	1,870,000	28	0 8	2600	On admission.
Sept 4	2,250,000	34	0 8	2800	
,, 8	2,850,000	50	0 9	5760	Day after tf
,, 14	3,840,000	69	0 8	7760	7 days after tf
,, 22	3,880,000	70	0 9	5900	14 days after tf
Nov 12	4,440,000	90	0 1	4440	9 weeks after tf

tf = transfusion

In all counts normoblasts were seen, there was also some anisocytosis and poikilocytosis

Differential Diagnosis

The differential diagnosis was easily made from infective endocarditis by the falling temperature, the blood picture, and absence of signs of infarcts, from secondary anæmia with toxæmia by the blood-count The differential diagnosis from Addison's anæmia was very difficult, the blood picture closely resembled that usually found, but the colour index, though increased, was never so high as is usual in Addison's anæmia, in respects, however, such as the presence of abnormal red cells, the pictures were identical Also this case never showed oral sepsis

The patient made an excellent recovery, although the last blood-count showed the presence of abnormal red blood cells and is indistinguishable from a remission of Addison's anæmia

Conclusions

The occurrence in this disease of severe anæmia, high colour-index, and achlorhydria associates it with Addison's anæmia The symptom of diarrhœa with large pale stools and the incidence of the disease in patients residing in hot climates suggests an infection possibly of the same type as sprue The predisposing factors are undoubtedly achlorhydria associated with general debility, prior to the onset of pregnancy

Our thanks are due to the pathological staff of the Royal Free Hospital who carried out the pathological investigation

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FOUR CASES OF ANTHRAX TREATED WITH SCLAVO'S SERUM.

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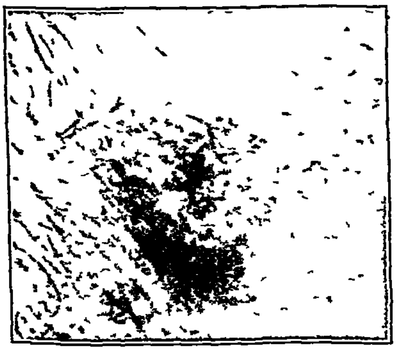
THESE cases of anthrax are of interest inasmuch as they all were traced to the same source of infection—the two elephants which recently died at the Zoo All four men were employed in some connexion with the animals

The diagnosis in each case being made early by the recognition of the *B anthracis* in smears taken from the lesions, immediate serum treatment was undertaken, no active surgery was required All the men made uninterrupted recoveries with the exception of the first who developed broncho-pneumonia following on an attack of influenza

Method of treatment in all cases was subcutaneous injection into the loins or over the glutei of Sclavo's anti-anthrax serum, made at the Tuscan Serum and Vaccine Institute, Siena, and obtained from the London agents, the Jenner Institute for Calf Lymph, Ltd

Details of the cases are as follows —

FIG 1



CASE 1 —Photograph of the lesion taken on the morning of Jan 3rd

CASE 1 —Male, aged 41, a butcher and slaughterman On Christmas Eve he was working, with bare hands and sleeves rolled up above the elbows, on an elephant which has just died at the Zoo Seven days later (Dec. 31st) he noticed a small pimple on his right wrist which was not painful but increased a good deal in size He also felt slight pain in the right axilla but did not feel ill generally On Jan 3rd, 1927, he was admitted to St Thomas's Hospital Temperature, 97° F , pulse, 76 There was a dark elevated sore, ½ in. in diameter, on the radial side of his right wrist (Fig 1) The centre of the sore was black and depressed, no vesicles were present, and there was very slight surrounding œdema Some small glands were just palpable in the axilla but these were not tender Smears taken from the surface of the sore swarmed with *B anthracis*

Twenty c cm of Sclavo's serum were injected subcutaneously into each flank

Jan 4th The lesion had changed considerably The centre was blacker, one or two vesicles had appeared around, and there was some œdema extending about 2 in around the lesion Temperature, 99° Thirty c cm of serum were given

5th Temperature rose to 101° during the night, but dropped again to 99° Lesion appears much the same but less œdema Twenty c cm of serum given

6th Temperature, 97° The lesion beginning to dry up Twenty c cm serum given

10th Temperature, 102 8°, pulse, 100 Patient who had previously been feeling well complained of a sore-throat, a cough, and general aching of the whole of the body No physical signs in the chest The anthrax lesion drying up and scabbing over

In the course of a couple of days the patient showed signs of broncho pneumonia The anthrax lesion was completely scabbed over. On Jan 15th the lesion was scraped and cultures made, but *B anthracis* was not grown. The sputum was also examined for the organism, but this also was negative The chest eventually cleared up and the patient was discharged on Feb 7th, the sore being much smaller with a tough scab over it

CASE 2 —Male, aged 17, horse-keeper On Dec 24th and 28th the patient was employed in carting away the carcasses of two elephants, his arms being bare On Jan 2nd, 1927, he noticed a small pimple on the left side of his face which had not got worse On the 4th he noticed a small pimple on the posterior surface of his forearm He was admitted to St Thomas's Hospital on Jan. 5th Temperature 98 2° F. A small acne pimple was present on the left side of his face, no anthrax bacilli could be found in a smear from this lesion which soon cleared up On the posterior surface of the middle of his right forearm there was a small red pimple not much bigger than a pin's head, which might easily have been called an acne pimple and passed over However, it looked peculiar since it stood alone in the middle of a hairless forearm, with an area immediately around the pimple whiter than the rest Smears showed *B anthracis* in large numbers No glands were palpable Thirty c cm. of serum were given

Jan 6th Spot has slightly increased in size Temperature 98 2° Twenty c cm of serum given

7th Lesion about ¼ in in diameter and of a purple hue, being somewhat darker in the centre No vesicles present but there was a very slight œdema around Epitrochlear gland enlarged Ten c cm of serum given

8th . The condition much the same, except that the lesion was darker in the centre The condition then gradually dried up and scabbed over Cultures made from scrapings on Jan 15th were negative. The patient was discharged on the 17th By Feb 9th the area had healed over

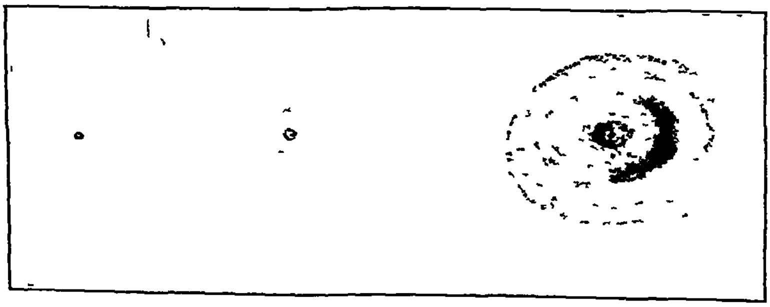
CASE 3 —Male, aged 20, laboratory attendant This patient states that he assisted at the post-mortem on both the elephants and that his hands and forearms were bare while doing so Six days after the second post-mortem (that is on Jan 3rd, 1927) he noticed two small spots on his right forearm These caused some slight irritation but were not painful He was admitted to St Thomas's Hospital on Jan 5th Two lesions were present, one over the subcutaneous border of the ulnar about 3 in from the olecranon, and the other on the middle of the ulnar side of forearm Both resembled the lesion in Case 2 The area immediately around the spots was much whiter than the rest of the forearm and this made them stand out prominently No axillary glands were palpable but the epitrochlear gland was enlarged Forty c cm of serum were given

Jan 6th Spots were slightly bigger and somewhat purple Twenty c cm serum given

7th · Ten c cm serum given The spots had now grown to ¼ in in diameter with a black centre No œdema was present

8th The lesions showed signs of drying up On Jan 15th cultures from the lesions were negative and the patient was discharged on Jan 17th When seen on Feb 15th both sores had healed.

FIG 2

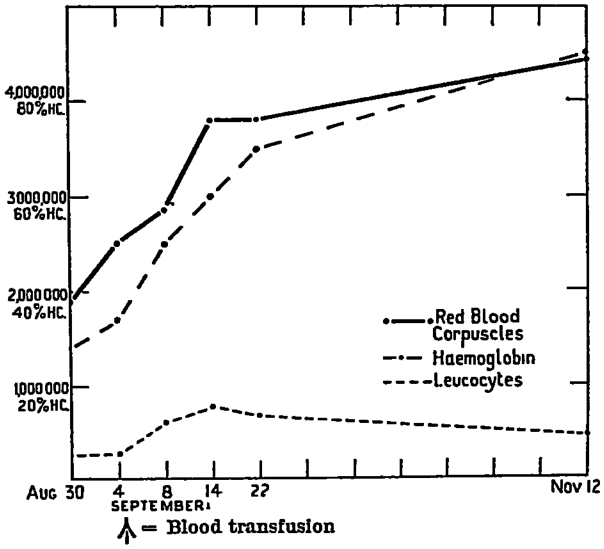


Development of an anthrax pustule Drawings made from Case 2. (Taken, by courtesy of Messrs J and A Churchill from Romanis and Mitchiner's "Science and Practice of Surgery," to be published by them shortly)

These two lesions never looked as bad as the one in Case 2, possibly because of the larger initial dose (40 c cm) of serum given

CASE 4 —Male, aged 27, naturalist This patient was in contact with first elephant only after it had died, working

Larrabee recommends treatment by a single blood transfusion ; of his eight cases, the four who had been transfused recovered, whilst three of the others died Smith [4] described eight cases of a pernicious type of anæmia with achlorhydria, associated with pregnancy occurring in women from 18 to 34, including two primiparæ Leucopenia was noted in seven of his cases and stomatitis in three Five of his cases had blood transfusions, and two, of whom one had been transfused, died He recommends repeated blood transfusions and treatment with dilute HCl, as he considers the achlorhydria the main ætiological factor



With regard to prognosis, Galloupe and O'Hara [5] state that the anæmia recurs with increasing severity in later pregnancies, but Larrabee and Osler describe cases of subsequent uncomplicated pregnancies

The ætiology of this condition is obscure Adler [6] considers that the condition occurs in predisposed women, but has no relation to Addison's anæmia Rowland [7] states "A syncytial hæmolysin is produced in the ectodermal cells of the chorion. Later an antihæmolysin is found in the maternal blood, failure in the formation of which results in persistent anæmia" Hein [8] considers Addison's anæmia very rare in pregnancy

Clinical Record

Mrs A B, aged 30, was admitted to hospital on August 28th, 1926, under the care of Dr Hoskin, complaining of fever and pallor

History —Previously a healthy woman, she had lived in India for the last three years, she had never had malaria or other fever, but during the hot weather had had occasional attacks of diarrhœa, with three or four large pale stools a day, such as occur in sprue Four weeks before admission she had a perfectly normal confinement, a full-term healthy baby, and no excessive hæmorrhage For five weeks previously she had complained of breathlessness and great fatigue which was attributed to her pregnancy Fatigue, breathlessness, and pallor increased rapidly after confinement For a week she had been feverish and complained of a heavy feeling in the left axilla, misty vision, and black specks in front of her eyes

Condition on Admission —Temperature, 103° F, pulse, 130, respirations, 55 Marked pallor, with almost colourless lips and mucous membranes Tongue coated, teeth good, no oral sepsis Abdomen A tender spot opposite the right ninth costal cartilage Liver just palpable, spleen easily palpable, right kidney easily palpable and rather tender Heart Area of cardiac dullness not increased, first sound poor in all areas, and accompanied by soft systolic murmur with maximum intensity at the base of the heart. Blood pressure 116 A provisional diagnosis of infective endocarditis was made.

After admission the patient vomited occasionally for three days, on the fourth day the temperature fell to normal The following investigations were carried out

Blood-count —Red cells, 1,870,000, hæmoglobin, 28 per cent, colour-index, 0 8 White cells, 2600, polymorphonuclears, 68 per cent Anisocytosis, poikilocytosis, and diffuse basophile staining were present Normoblasts, megaloblasts, and myelocytes were seen

Fractional Test-meal —Complete achlorhydria

Urine —Specific gravity, 1015 No albumin, sugar and acetone a trace Bile present Urea, 1 3 per cent, total nitrogen, 99 per cent per 100 c cm, urea nitrogen, 0 68 mg per 100 c cm, ammonia nitrogen, 0 030 mg per 100 c cm, urea coefficient, 70 ammonia index, 31, diastase, 33 3 There was no indication of kidney or liver inefficiency Van den Bergh's test—positive, delayed, direct and indirect reactions, indicating hæmolysis

Stool —A few red blood-cells No protozoa or excess of streptococci present Retinoscopy (Mr Malcolm Hepburn's report) Several large hæmorrhages in both fundi near the disc No white edges of pigmentation of the hæmorrhages Vessels healthy, except for slight dilatation of the veins The hæmorrhages are retinal in origin and due to a blood rather than to a vascular condition

These findings suggested a severe anæmia of the pernicious type and are similar to those associated with pregnancy as described by Larrabee and C T Smith, and the case was treated on similar lines

Treatment and Progress

Blood Transfusion —500 c cm of blood were transfused by the citrated method on Sept 7th, 1926 Two hours later the patient had a severe rigor, but subsequently her condition improved rapidly Fraise's iron injections—1 c cm. was given daily Acid hydrochlor dil in 1 drachm doses was given three times a day in lemonade with meals, this dose was not tolerated owing to development of a sore tongue, and 15-minim doses were given, later this was increased to half a drachm

The general condition improved rapidly, appetite was good The vision improved gradually, the hæmorrhages were slowly absorbed Below is a list of blood counts

Date in 1926		Red cells	Hb %	Colour-index	White cells	Remarks
Aug	28	1,870,000	28	0 8	2600	On admission.
Sept	4	2,250,000	34	0 8	2800	
,,	8	2,850,000	50	0 9	5760	Day after tf
,,	14	3,840,000	69	0 8	7760	7 days after tf
,,	22	3,880,000	70	0 9	5900	14 days after tf
Nov	12	4,440,000	90	0 1	4440	9 weeks after tf

tf = transfusion

In all counts normoblasts were seen, there was also some anisocytosis and poikilocytosis

Differential Diagnosis

The differential diagnosis was easily made from infective endocarditis by the falling temperature, the blood picture, and absence of signs of infarcts, from secondary anæmia with toxæmia by the blood-count The differential diagnosis from Addison's anæmia was very difficult, the blood picture closely resembled that usually found, but the colour index, though increased, was never so high as is usual in Addison's anæmia, in respects, however, such as the presence of abnormal red cells, the pictures were identical Also this case never showed oral sepsis

The patient made an excellent recovery, although the last blood-count showed the presence of abnormal red blood cells and is indistinguishable from a remission of Addison's anæmia

Conclusions

The occurrence in this disease of severe anæmia, high colour-index, and achlorhydria associates it with Addison's anæmia The symptom of diarrhœa with large pale stools and the incidence of the disease in patients residing in hot climates suggests an infection possibly of the same type as sprue The predisposing factors are undoubtedly achlorhydria associated with general debility, prior to the onset of pregnancy.

Our thanks are due to the pathological staff of the Royal Free Hospital who carried out the pathological investigation

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1 Walter Channing New England Quarterly Journal of Medicine and Surgery, i, 157
2 William Osler Brit Med Jour, 1919, i, 1
3 R C Larrabee Amer Jour Med. Sciences 1925 clxx 371
4 C T Smith Jour Obstet and Gynæc, 1925, xl, 2 3
5 H Q Galloupe and D O'Hara Boston Med and Surg Jour, 1924 cxc, 161
6 A. Adler Ztschr f Geburtsh und Gynäk., 1924, lxxxvii, 505
7 J Rowland Jour Amer Med Assoc, 1924, lxxxii, 372
8 K Hein Zentralbl f Gynäk, 1923 xlvii, 818

obstruction and was rushed to the Royal Victoria Hospital, Montreal. Dr F. A. C Scrimger, who operated, reported —

"On opening the abdomen a large sac-like portion of the intestine was found, and round the base of this was twisted the cæcum and a long appendix, forming a volvulus, obstructing the small intestine for about one foot on either side of the Meckel's diverticulum" (see figure)

There were a few enlarged mesenteric glands opposite the diverticulum. The pathologist reported that the diverticulum was 6 cm. long and 4 cm. in diameter

Since operation the stools have no longer been huge; there has been no abdominal pain or vomiting, no constipation, no disinclination for food, and no rise of temperature without obvious cause. After convalescence the child did, however, suffer from repeated attacks of tonsillitis, and her tonsils were enucleated in February, 1925 The effect of her release, as I interpret it, from chronic intoxication (bowel and/or tonsils) affords a striking picture Since the symptoms of toxæmia, when they became acute (i.e., temperature 103 8°), were always dispersed at once by laxatives, and since she had only had two sore-throats in her life and her tonsils and cervical glands appeared normal, I feel certain that the origin of the toxæmia was not tonsillar, but was more likely to have been in the alimentary tract.

If in this case more attention had been paid to the character of the stools, and to the fact that periodical pain occurred in a negative abdomen, and if a radiographic examination had been made, the diagnosis might have been reached before the catastrophe of intestinal obstruction.

A CASE OF

LYMPHOSARCOMA OF THE NASO-PHARYNX TREATED WITH RADIUM AND X RAYS.

BY HECTOR A. COLWELL, M.B, M R C P. LOND, D.P H. OXF.,

DIRECTOR OF THE RADIOLOGICAL DEPARTMENT, KING'S COLLEGE HOSPITAL.

THE following case seems worthy of record as one in which an extensive lymphosarcoma disappeared under radiation therapy, without any operative procedure other than that necessary for the application of radium, and in which no recurrence has occurred during a period of over six and a half years Lymphoid tissue and lymphosarcoma are, of course, eminently sensitive to X rays and to the radiations from radium, but the tendency of lymphosarcomata to the formation of early and extensive metastases too often militates against a successful issue when treatment is undertaken

When first seen in September, 1920, the patient was a thin and somewhat cachectic man 31 years of age, who attended the hospital complaining of obstruction in the nose, bleeding from the back of the nose (into the pharynx) of some four weeks' duration, and gradually increasing deafness

Examination showed hyperplastic rhinitis with enlargement of the posterior extremities of the inferior turbinate bones, while the inferior meatus on both sides was filled with gelatinous mucus The nasopharynx was occupied by a large bluish-red mass showing evidence of recent hæmorrhage A further large mass occupied the area behind the posterior pillar of the fauces on the left side and extended to the Eustachian cushion, while a similar, but somewhat smaller, mass was present on the right side On both sides the glands in the posterior triangle of the neck were enlarged and indurated, the condition being more marked on the left side A portion of the growth was removed for histological examination and the clinical diagnosis of neoplasm was confirmed by the report that the specimen showed lymphosarcoma

Treatment and Course—The condition was so extensive as to be quite inoperable and it was decided to employ radiation therapy as a palliative measure, since the condition of the primary growth, with the coincident glandular involvement, seemed to hold out but little hope of a permanent cure being effected.

Accordingly, on Sept 22nd 1920 Mr C W. M Hope inserted two 50 mg. tubes of radium bromide, one into the main nasopharyngeal neoplasm and the other into the mass on the left side Both tubes were left in situ for six hours Five days later (Sept 27th) X ray treatment was commenced, one Sabouraud pastille dose being administered through a 3 mm. aluminium filter to both sides of the neck, the rays being directed upwards and inwards towards the nasopharyngeal region.

On Oct 1st the condition had much improved and the symptoms become markedly alleviated, breathing through the nose being comparatively easy, while the deafness was diminished. On Oct 5th the X ray treatment was repeated and five days later (Oct 10th) radium was again inserted for six hours, as before, into the already much shrunken growth At the same time the enlargement and induration of the cervical glands was found to be considerably diminished. On Oct 19th the postnasal space was—so far as macroscopic evidence was concerned—found to be free of growth.

Ten further applications of X rays were given between Oct. 19th, 1920, and March 29th, 1921. The nasopharynx remained free of growth and the glandular induration and enlargement completely disappeared There was now no apparent scope for any operative measures, and the patient has been kept under observation from 1921 until the present time. There is now, six and a half years after the initial treatment, no evidence of either primary growth or metastases The patient appears well and healthy, with only a few telangiectases on the neck due to the X ray treatment.

The patient came to the nose and throat department of King's College Hospital under the care of Mr. Hope, to whose kindness I am indebted for permission to publish the present note and by whom the insertion of the radium was undertaken.

A CASE OF

RUPTURE OF AN ENLARGED MALARIAL SPLEEN

BY JOHN MACQUEEN, M B, B CH. EDIN.,

ASSISTANT PRINCIPAL MEDICAL OFFICER, JERUSALEM

RUPTURE of a chronically enlarged spleen is not an uncommon accident in countries where malaria is prevalent. The condition is a grave one and the surgeon on opening the abdomen is faced with the removal of the organ. There appears at first to be nothing else to do, for stitching is generally useless, and the bleeding must be controlled by some means. Splenectomy of a malarial spleen is at any time a serious operation A surgical colleague in Egypt who removes enlarged spleens assured me recently that removal of the enlarged malarial spleen was followed by 100 per cent. mortality. The literature does not put it so high as this, but few surgeons, I should imagine, practise splenectomy to any extent, and it is probable that the experience quoted is, in this respect, as wide as that of most people The following case seems, therefore, worth reporting.

A male patient, aged 15, was admitted to the Municipal Hospital at Jaffa on Nov 17th, 1926. He walked from a carriage at the hospital entrance into the reception room.

History—He stated that he had come from Damascus to Jaffa recently to work with his uncle. On the day of admission, an hour before, this relative had kicked him on the abdomen. He collapsed after the blow and on coming to felt great pain in the abdomen, vomited once, and was brought to the hospital by the police. There was a history of recurrent attacks of fever in Damascus

Examination.—He was slightly, pale and had the rather muddy tint of the sufferer from malaria He complained of pain in the upper abdomen and walked half bent forward. The pulse-rate was 104 and the temperature 37 5 C The abdomen moved with respiration but in a forced and unnatural manner, and was arrested by sharp pain on three-quarters inspiration. I received the impression that this arrest was due to a diaphragmatic lesion. There was some tenderness in the left hypochondrium No movable dullness in the flanks could be demonstrated. There was no evidence of fracture of any of the ribs and the patient did not appear very ill. The spleen could not be palpated.

Rupture of the spleen was considered as a possible diagnosis and he was kept under close observation. On the 18th he was no worse On the 19th the temperature was 39 C., the pulse-rate had increased to 120, and the abdomen, [illegible], moved with respiration. I was unable to demonstrate movable dullness in the flanks. At the left base there with bare arms which became smeared with blood A week later he noticed an irritable pimple on his left arm, he scratched it and the arm became painful and red A smear at this stage showed no anthrax bacilli, but did show staphylococci and streptococci Hot fomentations were given, but the inflammation still spread On Jan 9th a 24 hours' culture showed *B anthracis* sporing, with heavy staphylococcal and streptococcal infection Fifteen c cm of serum (Parke, Davis) had been given the day before

On admission the patient did not look at all fit Temperature, 104 2° F, pulse, 106, tongue dirty A pustule was present on the radial side of the flexor surface of the forearm 3 in above the wrist It was about one-third inch in diameter, with a black centre and purple periphery Around all this was an acute cellulitis and lymphangitis ascending the forearm as far as the elbow The epitrochlear gland was enlarged and also the axillary glands A dose of 30 c cm of serum was given and hot dressings applied

Jan 8th Temperature, 103 4°, pulse, 96 The lesion appeared much the same Thirty c cm of serum given

9th. Temperature, 99 4°; pulse, 80 Is much better in himself The actual lesion is slightly larger but the lymphangitis is less Twenty c cm of serum given

10th Ten c cm of serum given The cellulitis and lymphangitis gradually cleared up without suppuration and the pustule gradually scabbed over No anthrax bacilli were found in a culture on Jan 15th, and patient was discharged on the 17th

When he was seen on Feb 16th the actual site of the pustule had not quite healed

Comments

The incubation period of all these cases lay between six to seven days, this shows the necessity of watching contacts over a period in excess of a week

In the early stages, as shown by Cases 2 and 3, the anthrax pustule bears little resemblance to the lesion described in text-books It is only when the pustule has become well developed that the classical appearance is produced (Fig 2) These lesions could only be distinguished clinically from a septic spot by the history, the dark centre, and the area of whiteness immediately around It is noteworthy that when bacilli were to be found in smears they were always present in large numbers The first smear from Case 4 was negative, but here there was a heavy secondary infection

No surgery was contemplated since all these cases reacted so well to serum The largest total dosage of serum was given in the first case (110 c cm) and the least in the second case (60 c cm) The latter however, flared slightly and perhaps a little more serum was indicated The fourth case was the worst constitutionally because of the cellulitis but this soon settled down with rest and heat All the sores took a long time to heal completely over, although no anthrax bacilli were present after Jan 15th

I am much indebted to Mr C Max Page and Mr. P H Mitchiner for permission to record these cases

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LIVERPOOL STUDENTS' COLLECTION FOR HOSPITALS The students of Liverpool University at their annual "rag" collected £5200 for the local hospitals, which is £1400 more than the previous best collection, and represents an average of £4 per collector

PROGRESS OF GLASGOW HOSPITALS —At the annual meeting of Glasgow Royal Infirmary an expenditure of £65,000 upon extensions was authorised The enlargements will include a lecture theatre commemorative of Lord Lister who was closely connected with the infirmary from 1861 to 1869 Further relief from pressure upon the wards is to be sought by the erection of an auxiliary hospital Meanwhile, the out-patient department and the Ophthalmic Institution are described as entirely inadequate —The annual report of Glasgow Western Infirmary states that the accommodation for the X ray and electrical department is practically the same as when the out-patient department was built 20 years ago, and this part of the work is being carried out with great difficulty A completely new X ray department is, indeed, needed —A new wing and an extension of the nurses' home are nearly completed, the entire cost of the works is estimated at £100,000 A new auxiliary hospital is to cost £50,000 —The David Elder Infirmary at Govan, built by the Elder Trustees, will be completed in a few months and handed over, with some £60,000 as the nucleus of an endowment fund, to the Western Infirmary

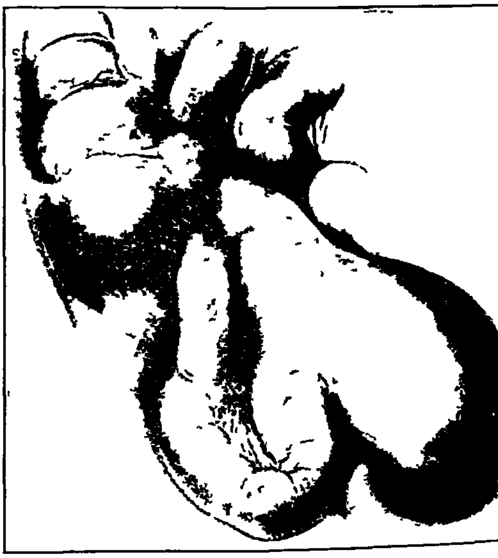
Clinical and Laboratory Notes.

A CASE OF MECKEL'S DIVERTICULUM*

BY C S McEUEN, M D, C M McGILL.

THE following case shows the nearly disastrous result of my failure to interpret signs and symptoms

The patient was a girl aged 7½ years During babyhood she occasionally had attacks of slight fever, with symptoms of intestinal toxæmia, which always cleared up with grey powder She was constipated and often vomited I took over the case in 1923, and found the child small (weight 28 lb), with poor muscular development, thin, looking very frail, and easily tired on exertion Night sweats were so excessive that her nurse raised the question of enuresis The girl never wished to eat Attacks of vomiting occurred three to four times a month, often during meals, but then never until she had eaten a considerable quantity of food, which she used suddenly to vomit, without more than three minutes preceding nausea



Condition seen at operation

Constipation was a constant trouble The stools were often very big in quantity, and of alarmingly large calibre, I should say 1½ to 2 in. in diameter was the rule She persistently felt tired and often had a temperature without apparent cause This, however, always yielded to a laxative

On six to eight occasions during the year 1923–24 the girl was observed to suddenly stop playing, sit very still, turn pale, and look frightened On being asked what was the matter she used to say she had "her pain" and point to the umbilicus She said that the pain "was not really a bad one" and it did not last over one minute It was never accompanied by vomiting Usually she sat very still for about one minute and then went on playing as if nothing had happened On many of these occasions she was at once undressed and I examined the abdomen carefully, but I never could detect any abnormality beyond a slight flatulent distension It is true that by the time the child was undressed she said the pain had gone and, therefore, the examinations were made too late

In August, 1924, I crossed to Canada with her She had an attack of acute tonsillitis on board ship which, to the best of her father's memory, was only the second sore-throat that she had ever had The child then spent three weeks with me in the Laurentian Mountains One day she complained of tiredness all day and refused food I found her temperature 103 8° F A physical examination was negative, except for a slight flatulent distension of the abdomen She was given in all 1½ drachms of cascara evacuant, her bowels moved in 22 hours with a characteristically enormous stool, when her temperature had fallen to 98 8°, and the next morning she was in her usual health About ten days later the child suddenly developed an acute intestinal obstruction and was rushed to the Royal Victoria Hospital, Montreal Dr F A C Scrimger, who operated, reported :—

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* Abridged from a report read to the James Mackenzie Institute, St Andrews, on April 23rd, 1926

"On opening the abdomen a large sac-like portion of the intestine was found, and round the base of this was twisted the cæcum and a long appendix, forming a volvulus, obstructing the small intestine for about one foot on either side of the Meckel's diverticulum" (see figure)

There were a few enlarged mesenteric glands opposite the diverticulum. The pathologist reported that the diverticulum was 6 cm. long and 4 cm. in diameter

Since operation the stools have no longer been huge; there has been no abdominal pain or vomiting, no constipation no disinclination for food, and no rise of temperature without obvious cause. After convalescence the child did, however, suffer from repeated attacks of tonsillitis and her tonsils were enucleated in February. 1925 The effect of her release, as I interpret it, from chronic intoxication (bowel and/or tonsils) affords a striking picture Since the symptoms of toxæmia, when they became acute (i e, temperature 103 8°), were always dispersed at once by laxatives and since she had only had two sore-throats in her life and her tonsils and cervical glands appeared normal, I feel certain that the origin of the toxæmia was not tonsillar, but was more likely to have been in the alimentary tract.

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Treatment and Course—The condition was so extensive as to be quite inoperable and it was decided to employ radiation therapy as a palliative measure, since the condition of the primary growth with the coincident glandular involvement, seemed to hold out but little hope of a permanent cure being effected

Accordingly on Sept 23rd 1920 Mr C W M Hope inserted two 50 mg tubes of radium bromide, one into the main nasopharyngeal neoplasm and the other into the mass on the left side Both tubes were left *in situ* for six hours Five days later (Sept 28th) X ray treatment was commenced, one Sabouraud pastille dose being administered through a 3 mm. aluminium filter to both sides of the neck, the rays being directed upwards and inwards towards the nasopharyngeal region.

On Oct. 1st the condition had much improved and the symptoms become markedly alleviated, breathing through the nose being comparatively easy, while the deafness was diminished On Oct 5th the X ray treatment was repeated and five days later (Oct. 10th) radium was again inserted for six hours, as before, into the already much shrunken growth. At the same time the enlargement and induration of the cervical glands was found to be considerably diminished. On Oct. 19th the postnasal space was—so far as macroscopic evidence was concerned—found to be free of growth.

Ten further applications of X rays were given between Oct 19th 1920, and March 29th, 1921. The nasopharynx remained free of growth and the glandular induration and enlargement completely disappeared. There was now no apparent scope for any operative measures. and the patient has been kept under observation from 1921 until the present time There is now, six and a half years after the initial treatment no evidence of either primary growth or metastases The patient appears well and healthy, with only a few telangiectases on the neck due to the X ray treatment.

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A male patient, aged 15, was admitted to the Municipal Hospital at Jaffa on Nov 17th, 1926 He walked from a carriage at the hospital entrance into the reception room

History—He stated that he had come from Damascus to Jaffa recently to work with his uncle. On the day of admission, an hour before, this relative had kicked him on the abdomen. He collapsed after the blow and on coming to felt great pain in the abdomen, vomited once, and was brought to the hospital by the police There was a history of recurrent attacks of fever in Damascus

Examination—He was slightly pale and had the rather muddy tint of the sufferer from malaria. He complained of pain in the upper abdomen and walked half bent forward The pulse-rate was 104 and the temperature 37 5° C The abdomen moved with respiration but in a forced and unnatural manner, and was arrested by sharp pain on three-quarters inspiration. I received the impression that this arrest was due to a diaphragmatic lesion. There was some tenderness in the left hypochondrium No movable dullness in the flanks could be demonstrated. There was no evidence of fracture of any of the ribs and the patient did not appear very ill. The spleen could not be palpated.

Rupture of the spleen was considered as a possible diagnosis and he was kept under close observation. On the 18th he was no worse On the 19th the temperature was 38° C the pulse-rate had increased to 120, and the abdomen scarcely moved with respiration I was unable to demonstrate movable dullness in the flanks. At the left base three was lessened air-entry and a few râles The patient looked ill It was decided that laparotomy should be performed

Operation —A central incision above the umbilicus revealed blood in the abdomen. Examination of the spleen by the hand—it is not possible to deliver these enlarged spleens through a central incision—showed a tear about half an inch wide running across the lateral surface and continuing round to and across the medial surface The organ was much enlarged, being about 11 in. long and firmer than normal The incision was carried across to the left flank with the intention of performing splenectomy

Recalling, however, the advice of my colleague, and the patient's condition being none too good, I felt that if possible something less radical must be tried Stitching was attempted, but proved useless There was evidence at this stage of a rupture of the diaphragm at the upper pole of the spleen. Air was blowing out and in with respiration It was decided to try packing This was done by means of five pieces of gauze each about 70 c cm long Three were pushed up on the lateral and two on the medial sides of the organ, the last two respectively in front and behind the hilus The spleen appeared to be quite tightly and fairly uniformly compressed in this way, and the lacerations were covered. Some blood was swabbed out of the abdomen and the wound closed with through-and-through silkworm-gut sutures except at the lateral corner where the five ends of gauze were left out

Progress —After operation the pulse was 122 and weak, and the temperature 38° C One pint of saline was given subcutaneously and later ⅙ gr of morphine hydrochloride On the second day the temperature dropped to normal and although the pulse remained rapid the patient did remarkably well On the third day after operation the gauze was carefully removed and the wound completely closed On the eighth to eleventh days after operation the temperature rose, the corner of the wound reopened, and pus discharged Otherwise there were no complications and the patient left hospital 26 days after operation.

Packing for rupture of the spleen is mentioned in the literature, but I had not heard of it before In publishing this case my object is to obtain, if possible, the experience of others working in countries where malaria prevails If this line of treatment holds out a fair hope of success it is, I should think, sounder than splenectomy for such cases

I am extremely indebted to Dr F Dejani, of the Municipal Hospital, Jaffa, for his assistance in this case

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF DERMATOLOGY

At a meeting of this Section held on Feb. 18th, Dr E **Graham Little** in the chair, a discussion took place on the

Treatment of Ringworm by Thallium Epilation

Dr E B **Dowling** demonstrated four cases of the series reported in The Lancet last week (page 389) Three of them were showing active regrowth after complete epilation, the fourth was of later date and had not yet reached total defluvium This child had complained of pains in the legs a week after taking his dose of thallium acetate, but had completely lost the symptom a few days later Dr Dowling thought that these undesirable effects might be diminished or even prevented by keeping the patients in bed whilst epilation is taking place—i e , for about three weeks

Dr S **Monckton Copeman** related personal experiences of the use of thallium acetate in the treatment of inoperable carcinoma The patients' ages, he said, varied from 49 to 78, and the cases could not therefore be fairly compared with those under discussion A solution of the salt, prepared and tested by Prof W E Dixon of Cambridge, was administered intramuscularly, at first on alternate days in doses of 1 grain then every day, then in doses of 2 gr on alternate days. and finally in doses of 1 gr every other day The total amounts injected during an average period of three weeks varied from 0 778 to 1 361 grammes, thus a proportionately much greater dose had been given than in any of the cases reported by Dr Dowling This dose was, however, spread out over three weeks instead of being given in one draught as the object was to obtain, if possible, a continuous inhibitory effect on the neoplasms Some improvement had, in fact, been noted Five of the six cases treated had lost all their scalp hair, two of them even their eyebrows and lashes The only one who did not suffer in this respect—a man of 49—had developed mental symptoms of a delusional type after only 0 778 g had been administered, and in his case, therefore, the drug had had to be discontinued He had subsequently recovered his normal mentality. All the cases had complained of tingling pain in the limbs and a burning sensation in the soles of the feet In two of them colicky abdominal pains developed but no diarrhœa Albuminuria did not occur. One woman, aged 70, who had advanced malignant disease of the breast, had complained of severe substernal pain in addition to the other symptoms cited above In her case injections were stopped at once after 1 037 g had been given, but she died three days later from sudden heart failure without developing any other noteworthy symptoms There were no very definite post-mortem findings, except the secondary deposits, to account for her death It was to be presumed, therefore, that the thallium was at least a contributory cause

Dr H. W. **Barber** called attention to the interesting similarity of the epilation produced by thallium acetate, X rays, and alopecia areata, in all of which atrophic "exclamation stumps" were to be found He also remarked on the persistence of a frontal fringe of non-epilated hair in Dr Dowling's cases, which he regarded as some evidence of a selective affinity for different areas He agreed with the view expressed by Buschke, Peter, and others, that thallium acetate probably acted by way of the sympathetic nervous system and only indirectly on the hair

Dr H C **Semon** said that he had noted very similar toxic phenomena during the intravenous injections of a gold salt (krysolgan), with which he was treating cases of lupus erythematosus The pains of which his patients had complained were sharp and fleeting, and suggested in their distribution an affection of fibrous sheaths round muscles He had quite recently discovered that an intravenous injection of 0 6 g of thiosulphate of soda appeared to exercise a rapid and very effectual control of the symptom, acting in much the same way as he had described for the toxæmias of bismuth and mercury The atomic weights of gold (197 2), and thallium (204), were closely similar, and it might conceivably be found that the antidotal effects of thiosulphate of soda would be useful in preventing or alleviating undesirable results from the administration of thallium

MANCHESTER MEDICAL SOCIETY.

At a meeting of this Society held on Feb 2nd, Dr A A. **Mumford** in the chair, Dr R I **Poston** opened a discussion on

Vertigo

He dealt first with the occurrence of vertigo in epidemic encephalitis (encephalitis lethargica) where, he said, this symptom often appeared in association with other signs of vestibular disorder Recalling Gertier's "paralysing vertigo" of 1888, he went on to describe the endemic kubisagari of Japan The two affections had much in common, and there could be little doubt that they were variants of the same condition There could be no doubt that they were both due to an infective encephalitis, and he suggested that as kubisagari had occurred in Japan up to 1912, it was possible that it was responsible, or that undiagnosed cases of Gertier's disease in Europe were responsible, for the pandemic of the last decade

An outbreak of encephalitis with vestibular symptoms had been reported in Strasbourg in 1921

Having dealt with the known pathology of the condition and the results of several experimental workers who had actually found vestibular lesions in rabbits, Dr Poston gave a brief description of six cases of encephalitis which had come under his own care With Mr F H Diggle's help the vestibular reaction of these cases had been determined and abnormal induced nystagmus had been found in three In a case in which there was complete external ophthalmoplegia (seen through the kindness of Prof A J Hall, of Sheffield) it had been found that simple syringing of the ears with cold water not only relieved ptosis, but enabled the patient to move his eyeballs in every direction and relieved the diplopia of which he complained He described another case of Prof Hall's which showed "spasmodic cramp of the upward glance," and in which change of position changed the direction, but not the character of the phenomenon

Discussing the diagnosis of vestibular encephalitis, Dr Poston urged the importance of first excluding cerebro-spinal syphilis, aural disease, and intracranial lesions He pointed out that in cases of epidemic encephalitis with gross signs of cerebellar involvement it had been found at autopsy that the cerebellum was normal Nystagmus might suggest disseminated sclerosis unless definite and incontestible signs of Parkinsonism were present The following triad was suggested as offering clinical evidence of disordered vestibular function in the absence of aural disease: disorders of equilibration (e g , vertigo), spontaneous nystagmus, and abnormal induced nystagmus or abnormal Babinski-Weill reactions

Dr Poston suggested a classification of epidemic encephalitis as follows (1) vestibular syndrome; (2) juxta-vestibular syndrome with signs pointing to involvement of structures adjacent to or connected with the vestibular nucleus, such as oculomotor symptoms, neuralgia, facial paralysis, sialorrhœa, disorders of respiration and pulse, or dysphagia, (3) pallidal syndrome—e g , tremor and rigidity; (4) striate syndrome—e g , tremor and myoclonus Pyrexia and lethargy were the only common symptoms not included in such a classification In conclusion, he stated that the vestibular syndrome in epidemic encephalitis might occur alone or with such symptoms as those already mentioned, it might occur at the onset, during the acute stage of the disease, or it might persist as a residuum Interference with vestibular function might account for many of the oculomotor phenomena of the disease, if not for all of them

Mr F H **DIGGLE**, after briefly referring to the fact that vertigo was only one manifestation of a disturbance of the vestibular apparatus, pointed out that by artificial stimulation of the peripheral sense-organ in the labyrinth it was possible to produce all the symptoms and signs of such a disturbance—viz , vertigo, nystagmus, reeling gait, and vomiting He further showed that by a close study of such induced symptoms it was possible not only to test the integrity of the peripheral end-organ, the labyrinth, but also, in a few cases, to locate a lesion in other parts of the vestibular nervous arc Vertigo, he said, might be produced by a lesion in the labyrinth, by a lesion in its intracranial and spinal connexions, or by ocular lesions Vertigo arising in acute inflammatory conditions of the middle ear was usually relieved by efficient paracentesis tympani He drew attention, however, to the prevalence and seriousness of vertigo in acute exacerbations in chronic suppuration in the ear The danger lay in the fact that translabyrinthine infection was the commonest precursor of fatal meningitis, and the warning signal of vertigo should not be neglected

Discussing non-suppurative labyrinthine lesions, Mr Diggle referred to the difficulty arising from the want of pathological knowledge Vertigo might be due to abnormal pressure of the intralabyrinthine fluids, to irregularities in the vascularity of the organ, or to the effects of toxins upon the nerve end-organ He thought that vertigo associated with impacted ceruminous plugs, intermittent Eustachian obstruction, and occasionally hydrops of the middle ear could be explained by abnormal intralabyrinthine pressure Increased pressure of cerebro-spinal fluid might directly raise intralabyrinthine pressure and so produce vertigo, though often cerebral anæmia could not be excluded Relief occasionally followed lumbar puncture, and a few cases had been recorded by Aboulker and Colledge in which relief had followed the operation of subtentorial decompression In dismissing intralabyrinthine pressure Mr Diggle mentioned cases recorded by Mollison of relief to vertigo after trephining the external semicircular canal

In considering vascular lesions affecting the labyrinth, Mr Diggle drew attention to the fact that many patients on examination presented a normal inner ear Massive hæmorrhage as a cause of the Ménière's syndrome was, he thought, infrequent, though it could not be denied that there were sometimes small leakages from atheromatous vessels Other remote lesions, apart from intralabyrinthine hæmorrhage—such as arterio-sclerosis, abnormal blood pressure, certain anæmias, metabolic disorders, and toxins—might be responsible for Ménière's syndrome Was vertigo in such cases due to effusion into the labyrinth, to atheromatous disease of the vessels, or to toxic neuritis? Mr Diggle pointed to the analogy in the eye—namely, tobacco amblyopia, retinal hæmorrhages in nephritis, and retinal detachments from effusion—and drew attention to the toxæmic conditions responsible for vertigo and to the frequent association of vertigo with nicotine poisoning and with nasal sinus suppuration. He considered that occult sepsis was a potent factor. In discussing treatment he urged that no operative ablation of the labyrinth should be undertaken until all other measures had failed, and then only on a labyrinth functionally inactive

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NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

THE annual meeting of this Society was held at Manchester on Jan 28th

Dr W R **ADDIS** read a paper on a

New Method of Inducing Labour.

The method, he said, consisted in the intramuscular injection of extract of ovarian residue (without corpus luteum) prepared by Parke Davis and Co The amount given was 1 c cm of the extract, and this was injected into the pectoralis major muscle, where it formed the anterior border of the axilla At first the contractions of the uterus had to be recognised by palpation as the onset of labour was painless The dose was repeated when the contractions began to diminish in intensity and frequency The average time in which this occurred was about three hours After the second injection a dose of one ounce of castor oil was given by mouth. Dr Addis had employed this method in 22 cases at stages of pregnancy varying from 36 weeks to a week post-mature He had come to the conclusion that it was practically infallible as a method of induction of labour Only in the first case had the method been a partial failure. With this form of induction the labour induced was almost painless throughout the first and beginning of the second stage. and pains were really only experienced when the presenting part caused bulging of the perineum

Dr J W **BURNS** (Liverpool) showed a specimen of an

Unusual Uterine Tumour

The patient was a woman, aged 39, whose menstrual history was not abnormal until 18 months before she came under observation, when the loss began to increase For the past month there had been more or less constant bleeding, and she complained of weakness There were no symptoms arising from either the bladder or rectum

On *examination* a smooth, hard tumour could be felt in the lower abdomen reaching almost to a point midway between the symphysis pubis and the umbilicus Bimanually the cervix was found to be drawn up behind the pubes and the uterus was enlarged, hard, smooth, and freely mobile There was no swelling of the appendages A diagnosis of fibroid was made

At *operation*, on the peritoneum being opened some free dark blood was seen The uterus was symmetrically enlarged by what was thought to be a fibroid undergoing some degeneration Portions of the sigmoid and the ileum were adherent to the upper surface of the tumour, they were liberated with difficulty and a subtotal hysterectomy was done with removal of both tubes and ovaries The patient made a very rapid recovery

Pathological Condition —The uterus, after hardening, measured 4×4×4½ in, and was symmetrically enlarged, the wall of the fundus was 2 in thick The cut surface was fibrous and numerous small cavities were scattered throughout Many of these cavities were subperitoneal and some of them contained dark blood On the upper and posterior surface was a roughened area where the intestines were adherent There was one small fibroid in the posterior wall of the fundus, and the endometrium appeared thickened and ragged Both tubes were small and appeared normal The ovaries were slightly enlarged and contained several cysts which were filled with a clear straw-coloured fluid Attached to the wall of two of these cysts was some old blood-clot Microscopical section showed in the endometrium numerous glands with regular and single-layered epithelium The stroma was relatively scanty, and there was no evidence of inflammatory reaction The endometrium seemed to be spreading deeply into the muscular wall Sections of the uterine wall showed slight increase of fibrous tissue, and all sections showed the uterine wall to be infiltrated with islands of tissue indistinguishable from the endometrium Some of the gland spaces were filled with blood, especially those near the peritoneal surface Sections of the ovaries gave no evidence of endometrioma and no lutein tissue was to be seen

In most of the specimens of diffuse adenomyoma which had been reported, said Dr Burns, the adenomyomatous condition had been described as a tumour or tumours localised to some portion of the uterine wall In this specimen the whole uterine wall appeared to be permeated with the endometrial tissue, and he suggested that this was a true endometriomatosis

Prof. Miles Phillips (Sheffield) asked if the condition was associated with pain, if there was definite evidence of downgrowth from the surface of the endometrium, and if any communication could be made out between any of the spaces and the cavity of uterus

Dr Burns replied that there was no pain and no microscopical evidence of downgrowths of endometrium

Dr Leith Murray (Liverpool) described a case of

Suppuration in a Pseudomucinous Cyst

The one now recorded, he said, was the only case of suppuration that he had seen in a consecutive series of 115 pseudomucinous cysts The rarity of the complication was interesting in view of the fact that fluid from such cysts had been, in the past at least, recommended for use in certain culture media

A woman, aged 34, was admitted to hospital in March, 1926, with a history of swelling of the abdomen since the birth of her second child seven months previously, there had been a more rapid development in the two months preceding her admission, but pain had been completely absent

On *examination* the patient was obviously in a condition approximating to the typhoid state, she had a dry, furred tongue, dilated pupils, and a temperature ranging from 100°–103° F As her pulse-rate was 90 to 100 it was thought inadvisable to operate until a Widal reaction had been taken, this proved negative for typhoid and paratyphoid A and B A blood-count showed 16,875 leucocytes per c mm There was a slight trace of albumin in the urine and a moderate amount of pus The abdomen showed a tense cystic swelling reaching to midway between the umbilicus and the ensiform cartilage, it was not in the least tender and the abdominal wall moved freely over it

Operation —Although it appeared unlikely that a cyst which was mobile and not at all tender was the cause of so much general upset, it was finally decided to operate A cyst weighing 9 lb 6 oz was removed through a vertical incision There was hardly any ascites and only one small (½ in) adhesion to the small intestine While this piece of gut was being separated there was a slight leakage of purulent material A dab was promptly placed over the spot, the cyst was delivered entire as rapidly as possible, and the abdomen was completely closed

The patient's temperature was normal next day, and remained so during an uninterrupted convalescence The improvement in her appearance was dramatically rapid

The *specimen* showed a typical pseudomucinous cyst of the right ovary with one large loculus containing more than a pint of creamy pus approaching the surface at the point where the intestine had been adherent, the rest of the cyst appeared to be uninfected The contrast between the large purulent loculus and the clear pseudomucin in the smaller loculi was very marked There was no twist of the pedicle Cultures, both aerobic and anaerobic, proved sterile after 48 hours, nor were any bacteria observed in direct films of the pus Pseudomucin was present both in the pus and in the non-infected loculi, and the microscopical structure was as usual, except around the abscess cavity where only traces of epithelium were observed and round celled deposit was intense

The interest of the case, said Dr Murray, lay in the history of normal labour and in the very small size of the intestinal adhesion Bland-Sutton[1] had observed that it seemed somewhat difficult to understand how ovarian cysts could become inflamed, enclosed as they were in air-tight cavities, and having no communication with other organs He considered the principal sources of infection to be the Fallopian tubes, the intestines, the appendix, and "tapping" To these must be added,[2] as was proved by several cases of typhoid infection of ovarian cysts, infection by the blood stream in systemic diseases of infective origin Pfannensteil[3] expressed the opinion that infection of an ovarian cyst was usually derived from the tube or intestine—the latter almost exclusively when the cyst was adherent to bowel or even near it if the bowel was injured or damaged from any cause

A discussion of the case followed in which the President, Prof Phillips, and Prof Henry Briggs (Liverpool) took part

Dr N E Edwards (Manchester) described a case of

Rupture of the Uterus

A woman, aged 36, had had four previous labours—first, instrumental, second, breech, third, instrumental, and fourth, normal delivery three years ago The pelvis was slightly contracted and of rachitic flat type

Labour pains began at 5 A M on Sept 30th Membranes ruptured at 11 A M., and the doctor was then of opinion that the breech presented Pains increased until 4 P M.—11 hours after onset—when they suddenly ceased, being replaced by continuous pains in abdomen, back, and right shoulder, associated with vaginal hæmorrhage The patient was admitted to hospital with moderate collapse, a temperature of 97 4° F, and a pulse-rate of 120, she had a trace of albuminuria. Abdominal examination revealed the fœtus lying transversely with its head in the mother's right flank free in peritoneal cavity The contracted uterus was felt lying over to the left side No presenting part was to be felt on vaginal examination.

Dr Brentnall opened the abdomen and removed from the peritoneal cavity a female fœtus (9½ lb), with its placenta In the lower segment of the uterus there was a complete transverse rupture which began just in front of the right uterine artery and ended behind the left uterine artery, which was severed Supravaginal hysterectomy was performed at the level of the rupture, a drainage-tube was put in the pouch of Douglas, and intravenous saline was given The patient recovered after somewhat stormy convalescence.

Discussing the cause of the rupture, Dr Edwards pointed out that there had been no interference by doctor or midwife He attributed the accident to repeated childbearing at short intervals, associated probably with some injuries to the lower uterine segment by instruments, these having given rise to muscular atrophy and fibrosis One of these weak spots had given under the strain caused by the vigorous attempts of the uterus to expel a large child through a relatively small pelvis The presentation might have been a breech with extended legs It must also be considered what part had been played by toxæmia, as evidenced by albuminuria

Dr J W A Hunter described

An Unusual Case of Local Peritonitis following Ectopic Gestation

History —The patient was a woman of 34 On Dec 17th her doctor was called on account of sudden acute abdominal pain with vomiting and slight bleeding from the vagina Some slight fullness was felt in the pouch of Douglas, which was tender on pressure, this was attributed to a retroverted gravid uterus The temperature was normal, and the pulse-rate 90 She admitted being 14 days over her time.

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[1] Bland-Sutton Diseases of the Ovaries and Tubes

[2] Taylor Typhoid Infection of Ovarian Cysts, Journal Obst and Gyn Brit Emp, 1907, xii, 367

[3] Pfannensteil Quoted by Tayor vide supra

On the following day she was much better and went about her daily routine but on the third day there was a recurrence of abdominal pain, and an increase in pallor, and the pulse-rate rose to 100 On the fourth day she was still doing her work and her condition was unchanged

On the morning of the fifth day her symptoms rapidly became more severe Her doctor was called in and found her complaining of still greater abdominal pain On examination the abdomen was more tender than before, the pulse-rate was 110, and for the first time the temperature rose above normal and was 100° F In the evening she was even worse, the abdomen was distended, very tender and rather rigid The temperature had risen to 102°, the pulse-rate was 130, and on examination the doctor noticed, for the first time, a profuse and very foul-smelling vaginal discharge. She was then sent into St Mary's Hospital

On admission the patient was extremely pale and rather collapsed. The tongue was dry and brown, and there was sordes on the lips The temperature was 104°, and pulse-rate 124 The abdomen was distended and very tender, especially in the lower part, and percussion showed the presence of free fluid in the flanks A foul and dirty brownish discharge was coming from the vulva, and vaginal examination revealed signs of early pregnancy with fullness and tenderness in all the fornices In both posterolateral fornices tender adherent swellings were felt, similar to those usually palpable in acute salpingitis, and giving the impression of acute adnexal inflammation A diagnosis of pelvic peritonitis complicating early pregnancy was made, and laparotomy was decided upon as the infection appeared to be spreading to the upper part of the peritoneal cavity.

Operation (Dec 22nd) —A small mid-line incision was made above the pubes. It was difficult to recognise the peritoneum, for when it was reached dark-brown fluid and bubbles of gas could be seen through it, so that there was some hesitation about opening it because it resembled bowel On incising the peritoneum there was an escape of gas, followed by a large quantity of dark-brown, very foul-smelling fluid which had been distributed throughout the peritoneal cavity In this fluid were some pieces of disintegrating blood-clot When a hand was inserted into the pelvis the pouch of Douglas was felt to be obliterated by adhesions, and both appendages were bound down, so a tube was put down into the pelvis and the abdomen closed, no further treatment being thought advisable

On the following day the temperature came down to normal but rose to 102° in the evening, it again became normal on the third day, the patient being very much better On the fourth day the temperature rose to 100° and she was not so well. Thereafter improvement ceased; the abdomen became hard and distended with obvious general peritonitis, and on the ninth day after operation she died.

Post-mortem examination revealed a large purulent subphrenic abscess There was a small tubal gestation in the isthmic portion of the right tube Obviously this ruptured at the time when the symptoms began, and a hæmatocele formed in the pouch of Douglas Five days later this became infected, as shown by the sudden onset of temperature and signs of pelvic peritonitis

The interesting questions in this case, said Dr Hunter were, Was the infection due to a gas-forming organism, or was the gas, present in the peritoneal cavity, due to septic disintegration of blood-clot? Probably to the latter, for after operation there was no further sign of gas-formation and at autopsy the subphrenic abscess was of the ordinary pyogenic variety Secondly, what had been the starting-point of the infection? Was it from the bowel or from the vagina? Probably it was vaginal, otherwise it was difficult to explain the profuse and foul vaginal discharge No evidence of interference could be obtained though this was suspected, but the patient had admitted that she knew herself to be pregnant, and was known to have brought on an abortion herself about a year ago

Prof D DOUGAL said that he thought the gas was due to infection of the blood-clot He had seen a case of infection by *Bacillus aerogenes capsulatus* in which the uterus and the fœtus therein showed gas spaces and grew cultures of this organism

Miss FRANCES IVENS (Liverpool) showed a specimen of squamous carcinoma of the clitoris, associated with a cyst of the broad ligament, in a woman of 84, and a specimen of mixed-celled sarcoma of the ovary with pelvic tuberculosis

Reviews and Notices of Books.

ACUTE SEPTIC CONDITIONS IN SURGERY

Die Akuten Eitrigen Infektionen in der Chirurgie und ihre Behandlung. By Dr. ARTHUR BUZELLO. Privat docent and Assistant to the Surgical Clinic at Greifswald Berlin: Urban and Schwarzenberg 1926 Illustrated Pp 495 M 30

IT is to be supposed that this unusual classification of surgical diseases was adopted because so often septic cases are segregated in hospitals It is of doubtful advantage to group clinical cases according to their bacterial origin, but Dr Buzello has performed his self-imposed task very creditably. The volume is divided into a general part in which the behaviour of the body to infection, the natural history of septic organisms and methods of treatment such as vaccine therapy, auto-pyotherapy,

A special part follows which makes interesting reading, since the methods practised in Greifswald can be contrasted with those used in this country. Thus we find that he recommends the excision of facial carbuncles in order to save life and to lessen subsequent scarring, he also recommends the excision of ordinary carbuncles, without subsequent suture. Dr Buzello has obtained good results by the injection of the patient's own blood into the tissues surrounding a carbuncle In the section on panaritium he recommends what amounts to excision of small subcutaneous whitlows Healing of the frequent horseshoe incision of the terminal phalanx can be promoted by strapping the flap back into place when granulations appear—a useful hint When the tendon is lost in a finger, function of the digit will be lost also, and the author thinks early amputation of such useless fingers is advisable and rational, but never should such a course be followed when the thumb is the digit infected. Bier's treatment he finds useful in septic joints, but always combined with frequent aspiration, since it is no good to persist when frank pus has formed In mildly infected joints he washes out the cavity with 5 per cent. carbolic or injects 20 per cent iodoform in glycerine There is no mention of Willem's mobilisation treatment for a septic knee-joint As a prophylactic measure against infection after operating upon a knee-joint for some internal disorder, a plaster bandage is always applied In septic peritonitis irrigation is still used in early stages Opium is said never to be given in peritonitis, though a few pages later morphine is recommended for vomiting in this condition Every effort is directed to getting the bowels to act and a hot-air bath is said to be very effective for this purpose Breathing exercises after septic abdominal operations seem to be a good recommendation Actinomycosis is included amongst the septic diseases, as also is tetanus

The last section of the book describes the general septic diseases, septicæmia, pyæmia, and sapræmia, with methods of investigation and treatment The weakness of the method of classification adopted in this book is exemplified by the fact that such important septic surgical conditions as lateral sinus thrombosis, frontal sinus suppuration, and brain abscess are not described.

ELECTROTHERMIC METHODS IN THE TREATMENT OF NEOPLASTIC DISEASE

By J DOUGLAS MORGAN, B A, M D, Assistant Radiologist, Philadelphia General Hospital Philadelphia F. A. Davis Company. 1926. Pp 172 10*s* 6*d*

THE electrothermic methods of surgery are those in which high-frequency currents are used to generate heat within the body for the purpose of destroying or excising morbid tissue There are various ways of utilising the currents for these purposes The author devotes most space to the mode of treatment known as electrodesiccation. In this the heat is insufficient to cause actual coagulation of tissue, but is able to deprive it of water The author describes the principles of the method and the way of performing the operation He points out the beneficial results which can be obtained in the treatment of superficial malignant growths and benign tumours and other forms of morbid tissue According to the description the extent of desiccation is within full control of the operator Dr Morgan says that the results following the process are so perfect that a carcinoma involving the edge of an eyelid, the inner canthus of an eye, the tonsils or the larynx may be completely destroyed without impairing either the appearance or function of the part involved He also gives an account, under the heading "electrocoagulation," of the method known to European workers as "diathermic coagulation" or "surgical diathermy" The technique, and the results which may be expected in the treatment of malignant tumours in certain regions are described There is also a brief reference to the use of high-frequency currents for cutting tissue and excising tumours. The book contains chapters on first principles and the meaning of terms, on the chemical and physical properties of currents, on apparatus, and on the history of surgical diathermy The author deplores the abundance of terms employed by different writers for the description of the same treatment and refrains from the temptation of adding to the list

It is likely that the English reader will be most interested in the description of electrodesiccation This form of treatment seems to be popular in America, but it has not yet been adopted by workers in this country There is no precise information which will enable those who have not practised the method to ascertain when the tissue is desiccated Does it change its appearance, colour, or consistency? The monograph forms a clear introduction for those who desire to learn the important part played by electrothermic methods in surgery at the present day The pages are well printed in large type and a number of helpful illustrations are included

PSYCHOTHERAPY IN THE INSANE.

Selbstschilderungen der Verwirrtheit Die Oneiroide Erlebnisform By Privatdozent Dr W. MAYER-GROSS, Assistant Physician to the Psychiatric Clinic, Heidelberg Berlin Julius Springer Pp. 296. M. 219

THIS monograph, one of the voluminous Foerster-Wilmanns series on neurology and psychiatry, deals with the most difficult and debatable part of all psychological medicine, which is to evolve a system of diagnostics and therapeutics from what many are content to call the patient's "ravings." Freud, Jung, and Adler and their disciples have based systems of diagnosis and cure on the analysis of their patients' minds, and although they are opposed by considerable scepticism there is good evidence that their methods succeed in relieving many neurotic conditions They, however, are dealing with what the world calls "sane" patients, who, for all their ailments, know what they are talking about and can cooperate in the process Dr Mayer-Gross, a psychiatrist of great repute, has set himself the infinitely more difficult task of reading a meaning into the phantasies, delusions, and ramblings of patients suffering from advanced functional psychoses He sees in these distorted fragments of mental expression the causes that have distorted the mind, and sometimes the means that will counteract them He is not advocating a system based on speculation but one that he is testing every day in his own clinic It is not intended to replace the existing means but to supplement them, and no one will deny that they need supplementing His book consists of the verbatim records of the accounts of their subjective experiences given by eight patients suffering from various psychoses of biogenic origin together with the author's analysis, comments, and deductions His section on the acute hallucinatory psychosis is especially interesting (p 170), for his results suggest to him several new theories of the pathology of this condition Not many people in England will read this book, but its work will be done if it inspires an English psychiatrist to publish the results of his own investigations along similar lines

THE ENLARGED PROSTATE

By KENNETH M WALKER, F R C S, M A., M B, B C, Lecturer in Venereal Diseases, St Bartholomew's Hospital, Surgeon with Charge of Genito-Urinary Department, Royal Northern Hospital; Surgeon to St Paul's Hospital London Oxford University Press, Humphrey Milford. *1927 Pp 193 12s 6d*

THIS monograph summarises recent work upon the pathology and treatment of a very common affection. The scope and value of radium, X rays, or diathermy are clearly set out, while older methods are clearly described Particularly interesting are the chapters upon prostatism without enlargement and per urethral methods of operating The author's own experience shows just what can be effected by these methods and when they are indicated The general account of prostatectomy is good Mr Kenneth Walker does not seem to practise perineal prostatectomy, but he sums up very fairly (p 139) the advantages and drawbacks of each method It is a little difficult for the reader to find advice as to what preliminary treatment he should give and what examinations should be made in cases where operation is contemplated—such examinations, for instance, as the estimation of blood pressure and cardiac efficiency, and determination of the hæmoglobin content of the blood, all of which are potent factors influencing the outcome of the operation Most of this information is to be found in the book, but it is not collected in one place conveniently for reference This is the sole criticism we have to make of an otherwise excellent account of the enlarged prostate

TUBERCULOUS LESIONS OF THE EYE

Die Tuberkulösen Erkrankungen des Auges By Dr. RUDOLF BERGMEISTER, Privatdozent for Ophthalmology in the University of Vienna Berlin. S Karger 1927 Pp 143 M 6 60

THE main purpose of this book appears to be to put the specific treatment of tuberculous diseases of the eye on a sound theoretical basis and to advocate its more general employment The critic may object that too exclusive attention is paid to this method of treatment and especially that the most recent method recommended for these cases—ultra-violet radiation—receives but scanty notice Moreover, it seems to be taken for granted that so-called scrofulous or phlyctenular diseases are actually the result of a tuberculous toxin in subjects rendered supersensitive by a previous and, perhaps, unnoticed attack of tubercle Though this theory may be found to be true of some cases, the general consensus of opinion is that it does not apply to the majority The author quotes a large number of German-writing authorities; the absence of an index detracts from the convenience of his book and the entire absence of illustrations makes it hard reading for the British reader It contains, however, some interesting and important matter Original observations are few but include the occurrence of a corneal necrosis in a case of lupus As an unusual example of reaction to tuberculin cases he has noted the wandering of pigment from the periphery towards the centre in foci of choroiditis The shrinking of the sclera in cases of scleritis treated with old tuberculin is given as another example of focal reaction to be avoided The form in which the author recommends the treatment is the bacillus emulsion in small doses systematically increased during a prolonged period

THE SEPTIC PROBLEM.

A Solution of the Septic Problem and a New Theory of Immunity By D. MONTGOMERIE PATON, L R C P., L R C S Edin. London: Baillière. Tindall and Cox 1927. Pp 204 7*s* 6*d*

THE subject matter behind this ambitious title is neither logical exact. nor plausible As far as can be made out the author believes that antibodies are of two sorts: the one specific and only acting when free in the lymphatic system, and the other non-specific. acting when present in the blood. He attributes the production of the former, which in his view may be represented by diphtheria antitoxin, to the lymph glands and proceeding from this hypothesis states that on this account it is only capable of exerting its specific influence in the lymphatic system, which explains its uselessness when given orally. as a corollary he believes that other, non-specific, antibodies can be absorbed from the digestive tract and exert their effect in the blood A portion of the book is devoted to such theoretical considerations, and abounds with statements of the type that ‘ The endocrine defence lies in an increased potency and in a hormone balance specific for the antigen present,” and “ diphtheria toxin. having a proteolytic action like the streptococcus evokes a hormone and antitryptic balance which is capable of a definitely increased tissue resistance to all three organisms ” If any definite idea lies behind this phraseology it is effectively obscured The outcome of the book is that great therapeutic virtues are claimed for diphtheria antitoxin administered by the mouth and subcutaneously. in a large range of disorders from varicose ulcers to lobar pneumonia

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SAMUEL HAHNEMANN. HIS LIFE AND WORK.

By RICHARD HAEHL. M D. Translated from the German by Mrs MARIE L. WHEELER and Mr. W. H. R. GRUNDY. B.A London. Homœopathic Publishing Co 1926 Vol I, pp 443; Vol. II, pp 514 £3 3*s*.

THOSE who can spare the time and the labour to read through the two volumes containing nearly 1000 pages of closely set type will be more astonished than anything else at the remarkable mixture of common sense and credulity. of sound medical practice and of quackery. and of scientific insight and unscientific absurdities which characterise Hahnemann's career. He was one of the first to recommend and to put in practice a sensible and kindly treatment of lunatics; he was a pioneer in public health, in the proper way in which to bring up children and in sanitation He fought against excessive blood-letting and also against the absurd polypharmacy in vogue at the end of the eighteenth century and for some years later And yet he could write such a childish tirade against the use of coffee as we find upon page 60 of Vol. II and evolve all the Hahnemannian theories and practices of psora, and provings and decillion dilutions Dr. Haehl has collected with fearful care every conceivable scrap of information about his hero There are innumerable letters from and to Hahnemann, *most* of them dealing with trivialities such as that Hahnemann used a steel pen Lists of objects belonging to Hahnemann and his relations are all solemnly put down—e g, “Two red lacquered spittoons; five iron dog chains; four dogs' drinking troughs· one mouth harmonium with case” The book would have made better reading had its bulk been curtailed

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MENTALITY OF SUBTHYROIDIC CHILDREN

Geistige Entwicklung Hypothyroidischer Kinder bei Spezifischer Behandlung. By Dr. W. KORNFELD. Berlin. S. Karger. 1926 Pp 38. M 2 70.

THIS monograph consists of an account of the mental progress of 15 subthyroidic children. mostly cretins while undergoing specific treatment, with an extremely judicial and thoughtful elaboration of the results disclosed. The perversity of parents provided the author with opportunities of observing the effect of temporary cessation of treatment, which adds to the value of the records. Detailed results of mental testing are tabulated, and Dr. Kornfeld points out that the mental retardation of cretins has some characteristics which separate it from that of primary aments, the functions of attention and initiative being impaired beyond all others. He stresses the fact that organotherapy does not in itself produce true mental improvement, comparable to the physical improvement which takes place; it renders the brain susceptible to improvement, but this can only be achieved by active educative measures The defect of the customary method of dealing with these cases lies in its failure to fulfil these conditions. Patients who had made rapid progress in a special school. and who had been rendered fit for unskilled labour, at the age of 14 or so were passed on to mechanical tasks and no longer actively educated; the result of this was an improvement far below that which can be attained, or sometimes actual deterioration The subthyroid adolescent requires a definitely longer period of education than the normal one, and unless this is conceded to him the money spent on his welfare by the State does not produce an economic return.

The accounts of the individual cases bring out numerous points of interest. and Dr Kornfeld may be congratulated on making a really valuable contribution to the study of amentia

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THE BLACK DEATH.

A Chronicle of the Plague. Compiled by JOHANNES NOHL from Contemporary Sources Translated by C. H. CLARK. Ph D London. George Allen and Unwin 1926 Pp 284 12*s* 6*d*.

THE Plague of London has always fascinated the most superficial of students of history, standing out with the signing of the Magna Charta and the Gunpowder Plot and the beheading of Charles I. as an incident remembered not only by every school-boy but also by his elders. This is not to say that such high lights are always vivid and discrete A child, whose mind was being racked by the inquisition of a general knowledge paper when asked what he knew of “Habeas Corpus” replied “Habeas Corpus was what you said to the driver of the dead cart in the Great Plague. It means, ‘You may take the body.’ ”

The tradition of the widespread epidemic of 1348 has also been retained for 500 years and it is curious that there should still be room for researches as to its immediate and remote effects. This book is mainly concerned with the cultural and social aftermath of the scourge The narrative is drawn almost entirely from contemporary sources, extracts being given verbatim and hence has a pictorial value which no mere history can possess On the whole it is a most valuable study of the period. though here and there extraordinary statements show the danger of not verifying references. For instance, on p 177 is a story about how a man was taken by the Devil to a house in Milan and asked to sell his soul to the fiend, we are told that “ the description of the house shows a remarkable similarity with Homer's description of Circe's cave The terrible and the majestic, the charming and the horrible were standing cheek by jowl.” Now Homer distinctly says that Circe lived in a house in a clearing. and that the house was built of polished *stone*: neither was there anything horrible about the interior Again. on p 235 in talking about the Black Death and the Flagellants the author says “ Their cult was a cult of repentance and as such was intended as a direct imitation of Christ, such as a few centuries later was taught by Thomas à Kempis in his splendid book”· from 1348 to 1420 the generally received date of the De Imitatione, is not even one century. We also doubt whether the statement on p 208 that the erotic carvings in some of the French churches are due to the general laxity of morals prevailing during the plague in the fourteenth century is correct, for as a matter of fact some of the carvings in question are as old as the eleventh century. Other faults of detail are a certain indefiniteness about dates and an omission of full references to the source of the quotations given; otherwise the book deserves unqualified praise A quaint story finds a place of a quack who sold amulets as a preventive On no account was the amulet to be opened and read before 14 days had elapsed. They were bought in vast quantities and the quack, having raked in much money, departed At the end of the prescribed period everyone opened his amulet to read the charm, and found nothing but a rude couplet in Italian The copious bibliography appended to this interesting work will be of great value to those who wish to pursue the subject further, for it contains names, for the most part, unfamiliar

DEMENTIA RACHITICA

By Dr KURT HULDSCHINSKY Berlin. S Karger 1926 Pp 60 M 2 70

THIS monograph describes an investigation into the so-called cerebral component of rickets The first part consists of an account of some of the nervous manifestations of this disease, with an attempt to classify them as "psychic" or "somatic," which leads to some curious results Tetany is admitted to be somatic, but sweating and spasmus mutans are both classed as psychic, no mention being made of the association of the latter with nystagmus and other objective factors The results of a series of intelligence tests are given; these do little to justify the title of the work, as they yield no evidence of any mental defect, except a moderate degree of retardation, which occurs *as a result* of rickets The psychological explanation of "rachitophrenia," by analogy with schizophrenia at a later age, appears far-fetched, and will probably fail to satisfy the majority of clinical observers

THE BEHAVIOUR OF ANIMALS

The Natural History of Ants By RENÉ ANTOINE FERCHAULT DE RÉAUMUR Translated and annotated by W. M WHEELER, Professor of Entomology in Harvard University. New York A. A Knopf 1926 With 2 portraits and 2 facsimiles. Pp 280 25*s*

RÉAUMUR was born in 1683 and after a career of amazing industry and versatility died in 1757 He discovered how to make steel, invented a thermometric scale, incubated eggs, artificially studied digestion in vitro, wrote on the effective sealing of museum jars (the paper is translated in the Philosophical Transactions of the Royal Society (1748) of which he was a foreign member), and in one way or another illuminated an extraordinary variety of other subjects But he is perhaps best known for his great "Mémoires pour servir a l'Histoire des Insectes" of which the six volumes published during his lifetime are enough to place him in the first rank of those who have worked at the life-history and habits of insects He left materials for further volumes in a more or less coordinate condition, and his treatise on ants has been retrieved from the archives of the Institute by the pious care of Prof Wheeler We are given here the original text, a translation, many illuminating and scholarly notes, and, as a preface to the whole, a most interesting account of Réaumur's life and the position he occupied in relation to his contemporaries and to the progress of knowledge before and since To anyone with a feeling for natural history the book will be a delight It is so beautifully produced that there is no harm in noting that on p 36, line 13, a "no" seems to be astray and that the "Annotations" should have had back references to their germane text.

A HANDBOOK FOR SENIOR NURSES AND MIDWIVES

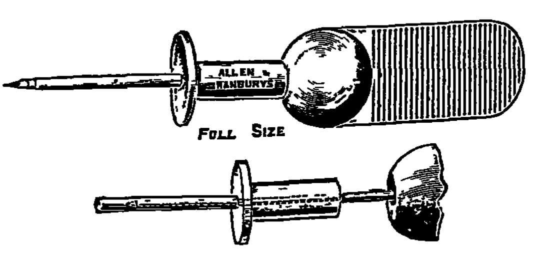
By J K WATSON, M D Edin London Humphrey Milford, Oxford University Press 1926 Pp 554 12*s* 6*d*

THE modern nurse is expected by her patients to have some knowledge of such subjects as encephalitis lethargica, insulin, endocrine therapy, and twilight sleep Unless she is prepared to read medical periodicals it is difficult for her to keep abreast of medical progress, and Dr Watson, whose previous handbooks for nurses and midwives showed him to be a shrewd writer in this sphere, has therefore brought out a supplementary volume intended principally for the senior nurse, sister, and experienced midwife The works from which much of the material in this book has been obtained is a guarantee that it is authoritative and up to date The book is divided into four parts medical, surgical, pædiatric, obstetrical and gynæcological, and in each section various important subjects are treated in a manner too detailed for the needs of the young probationer, but admirably suited to those of the sister The author begins with a chapter on preventive medicine, followed by one on the problem of cancer and another on the use of alcohol, subjects very much before the public on which the intelligent nurse is supposed to have some opinion On controversial matters the author gives both sides fairly; his account of the arguments for and against twilight sleep is particularly good, as is also the description of the method of conducting labour when it is used The book is well printed, illustrated, and indexed

New Inventions.

A LIPIODOL TROCAR AND CANNULA

THE only part of a lipiodol injection into the trachea by the cricothyroid membrane route which presents any difficulty is the insertion of the needle through this membrane If the needle is sharply pointed it is dangerous because it may lacerate the posterior wall of the trachea when the patient swallows or coughs, if it is bluntly bevelled it is difficult to push through the membrane, and painful and undesirable pressure may be needed A trocar and cannula has the advantage that it can be sharp when inserted and blunt when in position I therefore asked Messrs Allen and Hanbury to make the instrument shown in the illustrations The cannula is 2 cm long and the bore is 1 mm in diameter It is made to fit any Record syringe, and does so perfectly and easily, requiring no pressure to keep it in position, and there is no leakage of oil The shoulder of the trocar must adequately cover the end of the cannula When tested by pushing the instrument through linen or rubber there should not be the slightest catching of the cannula So often trocars and cannulas are sent out with glaring defects in this respect, and it is unpardonable. I have now used the instrument for several months and find it perfectly satisfactory It is easy to handle, and in spite of the small bore the oil flows perfectly if warmed to body heat



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[See also pp. 17 & 27.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 26, 1927.

DISTEMPER AND INFLUENZA

The administration of a national fund set aside for the initiation and development of medical research is liable to criticism from every taxpayer who is excited by the recollection of an undiagnosed pain or annoyed by the inconvenience of a recurrent infection. His chief plaint, sometimes, alas, supported by his harassed medical adviser, is that researches into abstruse bacteriological or biochemical problems are subsidised while the nature of common affections such as influenza remains unknown. In the introduction to their Annual Report for 1925–26, which we summarise on another page, the Medical Research Council patiently explain once more the many reasons why it is futile, even were it possible, to attempt to direct research into purely utilitarian channels. It is impossible because the elusive beam of light that some men are able to shed on problems that interest them is likely to be extinguished if they are pressed to turn it on dark places. It is futile because not even the worker himself can guess beforehand whether a given piece of knowledge is destined to have a direct bearing on medical practice. For example, the structure and distribution of the sterols—a group of complex solid alcohols of which cholesterol has the widest distribution in the animal body—has been for many years the subject of intensive research by organic chemists, notably A. Windaus in Göttingen, I. M. Heilbron in Liverpool, and H. J. Channon and J. A. Gardner in London. Quite recently[1] it has been shown by workers in the National Institute for Medical Research that the anti-rachitic vitamin D is actually formed when certain sterols are exposed to ultra-violet light, and already in our columns last week it was announced that a commercial preparation of ergosterol, believed to be at least 20 times more potent than cod-liver oil in the prevention and treatment of rickets, is available for trial by medical men.

In contrast with this sudden practical application of what seemed to be academic investigations is the way in which progress in the study of common diseases may be hampered by failure to discover an appropriate technique. If the critics of the Medical Research Council took the trouble to study the serial story told in successive annual reports they would see that many beginnings have been made to study apparently simple problems. Each time these have been found to depend on so many unknown factors that they cannot be approached with any hope of success until more is known of the complex processes of metabolism or of infection and immunity. For example, it is now nearly four years since the Field Distemper Fund was inaugurated to facilitate the study of the cause, prevention, and cure of canine distemper. High hopes were entertained of speedy results, for the reasons which prevent the direct study of comparable human diseases—the impossibility of experimental infection on a large scale and of controlled tests of the potency of remedies—do not apply. Moreover, since distemper occurs spontaneously in dogs, its experimental reproduction can be effected by direct contagion as well as by artificial means, and comparison of the course of the disorders produced need leave no doubt as to their identity. Yet, in spite of these facilities, concentrated research has done little as yet but reveal the magnitude of the problem. Carré's view that distemper is caused by a filter passing virus and not by micro-organisms visible by ordinary methods has been confirmed; but progress has been seriously handicapped by the failure in spite of persistent trials "made with every effort that experience and ingenuity can suggest" to propagate the distemper virus outside the animal body. Ferrets, which are highly susceptible to canine distemper, can be immunised to the infection by means of inoculation with a virus killed or inactivated by formalin, but this weakened virus gives only temporary immunity to dogs, though it appears to modify the course of an attack of the disease subsequently induced by fresh virus. The fact that susceptibility of individual dogs to distemper is highly variable adds to the difficulty of testing the effect of preventive inoculations. It is clear that before any method can be devised to give complete and lasting immunity to dogs, a virus of known and constant potency must be available and dosage must be accurately standardised. Until the virus can be cultivated outside the animal body the inoculation can only be crude and its content of active material uncertain. The Medical Research Council hold out little hope that a practical method of protecting dogs, suitable for general use, will be obtained until the nature of the virus, the right methods for its cultivation, and its laws of behaviour have been ascertained. This pronouncement will be appreciated and endorsed by all who understand the problems at issue. It follows that it is foolish to clamour for official guidance as to the prevention of influenza, the ætiology of which is even more obscure, for it is not yet established whether it is caused by a visible or an ultra-microscopic organism. The Council point out the analogy between distemper in dogs and influenza in man, and suggest that the right weapons for attack upon influenza are perhaps only to be forged in the easier experimental study of the animal maladies nearest akin to it.

The report, as a whole, is a fascinating record of work done at home and abroad, by chemists in laboratories, and practitioners at the bedside. It includes accounts of organised researches subsidised by the Council over a term of years, and notes of temporary facilities or assistance granted in order to bring certain workers together for a short time or to prevent the waste of material during a transition period. The report concludes with a list of 700 men and women named therein, the large majority of whom have received from the Council personal grants or paid assistance. There is a corresponding list of 80 institutions where work is being carried on wholly or partly under its auspices. Nearly all those selected for appointment year by year to the chairs under the medical faculties of our universities are men who have at one time held research grants from the Council, if indeed they do not relinquish these only on obtaining a full-time academic post. It is noteworthy that two of the candidates recently recommended for the signal honour of Fellowship of the Royal Society—Dr. P. P. Laidlaw and Mr. O. Rosenheim—are attached to the National Institute for Medical Research at Hampstead. The Council refer to a present shortage of young men of first rank available for research—a shortage which they attribute to the direct and indirect effects of the war. They are obviously keen to detect every sign of ability and to let no flicker of bright promise die out for lack of protection Nobody can press a switch and turn a flood of light into the dark caves of medical ignorance The function of the Medical Research Council, which they fulfil with fine discrimination tempered with most kindly tolerance, is to see that no one who has flint lacks steel, and that where even a tiny spark is produced tinder shall not be wanting

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[1] O. Rosenheim and T. A. Webster: The Lancet, Feb. 5th, 1927, p. 306.

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THE TESTS FOR DRUNKENNESS

In October, 1925, a Committee was appointed by the Council of the British Medical Association to consider and report on the present tests for drunkenness, and to make recommendations as to their improvement The Committee included the President of the Association, the chairman of its Council and of its Representative Body, and its treasurer, several divisional surgeons of the Metropolitan Police Force, two Metropolitan magistrates, and certain well-known clinicians and scientists like Dr **Farquhar Buzzard**, Mr J T J **Morrison**, Mr. E B **Turner**, and Sir **William Willcox**, the chairman being Major-General Sir **William Macpherson**, A M S The institution of the inquiry was immediately due to the notoriety given by the press to certain cases where persons had been convicted of drunkenness when in charge of motor cars There were here two pronounced waves of feeling first, that the public must be protected from the gross risks brought about through the reckless driving of motor vehicles, and, second, that the acuteness of this apprehension had led to the sentencing, as drunken, persons whose condition had not been properly tested—in short, there was a view that, in order to ensure the non-escape of the guilty, the innocent had been more than occasionally penalised

The Committee show by the report that they have considered closely the procedure usually adopted in police-courts for dealing with cases of alleged drunkenness, for they print in an appendix a resumé of what happens in London and in most of the larger towns, and for purposes of comparison describe also the procedure in the Navy and Army, and that in certain foreign countries such as Denmark, France, and the United States of America A further appendix consists of a memorandum on the particular offences where drunkenness plays a part, a list being thus presented of the circumstances in respect of which a doctor may be asked to express an opinion as to the existence of drunkenness in a particular individual In the body of the report the Committee suggest that the word "drunk" should always be taken to mean that the person concerned was "so much under the influence of alcohol as to have lost control of his faculties to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time" Medical practitioners will agree that the adoption of this as a definition would clear away some of the difficulties in certain classes of case The usual deliberations for establishing the fact that an individual is under the influence of alcohol having been reviewed, the general conclusion is come to that no single test taken by itself justifies a medical practitioner in deciding that the amount of alcohol consumed had caused a person to lose control of his faculties "to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time" A correct verdict, it is held, can only be arrived at by the consideration of a combination of several tests and observations such as "general demeanour, state of the clothing, appearance of conjunctiva, state of the tongue, smell of the breath, and character of the speech" These manifestations are to be noted in connexion with the manner of walking, turning sharply, sitting down and rising, and making small coördinated movements, while memory of incidents within the previous few hours and estimation of time intervals should be inquired into It is the sum of the conclusions arrived at after such varied inquiries that may justify or negative the diagnosis of drunkenness

The pathological conditions are set out which may simulate alcoholic intoxication and so lead to obviously unfair conditions where an inquiry is conducted in a perfunctory manner Here a warning is given which should hardly be needed by medical men, but which has an extreme importance in law courts especially for the information of juries The report finds that every single symptom due to the consumption of alcoholic liquor may also be assigned to some other pathological condition Sir **James Purves-Stewart** pointed out in a famous address on acute drunkenness delivered two years ago before the Society for the Study of Inebriety[1] that many of the commoner clinical phenomena employed on tests in the recognition of drunkenness are not in themselves tests for alcoholic poisoning, but rather for cerebral, cerebellar, or ponto-bulbar disorders And everyone knows how the presence of mental or nervous disorder, and the effects of drugs, of chemicals, or of shock may cause symptoms indistinguishable save by scientific investigation from those of drunkenness

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VORONOFF'S METHOD OF REJUVENATION

Dr Serge Voronoff is an enthusiast whose literary output keeps pace with his surgical work, and "Étude sur la Vieillesse" (1926) is followed by an English publication entitled "The Study of Old Age and My Method of Rejuvenation,"[2] translated by Dr F F Imianitoff The introductory chapters deal with the immortality of unicellular organisms, and the mortality of more highly organised creatures—a mortality which Voronoff attributes, partly, at any rate, to degenerative processes in the endocrine glands during old age He points out that the testis more than any other gland gives evidence of diminished function, for whereas the thyroid of an old man still continues to secrete, the testicles—at least so far as spermatogenesis is concerned—cease to function The diminution in the activity of the sexual glands, according to Voronoff, occurs pari passu with the onset of the signs and symptoms of old age, and the similarity between symptoms of senility and those of testicular insufficiency were, of course, emphasised by Brown-Séquard as long ago as 1869 The arguments employed by Voronoff in favour of the use of testicular grafts are, indeed, strongly reminiscent of those formerly put forward by the advocates of treatment by injection of testicular extract But unfortunately the problem is less simple than Brown-Séquard and Voronoff would lead us to believe The changes in the testes during old age are part of a widespread process affecting the whole body, and there is no reason to regard testicular atrophy and senility as standing in the relationship of cause and effect The real value of Voronoff's book lies not in its "scientific" preamble, but in its account of the practical results obtained from grafts; the value of his work must be determined by clinical results rather than theoretical arguments No longer can it be suggested that his deductions are based on insufficient material He has carried out the operation of grafting in over 1000 animals, and, if the work of other surgeons who have applied his methods is included, in over 600 men

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[1] The Lancet, 1925, i, 111

[2] London The Gill Publishing Co, Ltd 1926 Pp 155 10s 6d

His experiments have extended over some 13 years, and there has been plenty of opportunity of watching results

In reading the book it is impossible not to be impressed by such cases as that of the senile ram, apparently at the end of his potency in 1918 and still vigorous and sireing lambs in 1925—a result apparently achieved by the use of three testicular grafts inserted in 1918, 1920, and 1923 A weighty argument in favour of this rejuvenation being the direct result of grafting is the fact that one year after the first operation the grafts were removed, their removal being immediately followed by a recrudescence of old age, signs of which again disappeared after the use of the second series of transplants In speaking of man Voronoff suggests that the human organism reacts to grafting in exactly the same way as the ram or the bull In his opinion results have been obtained in the human being as astonishing as those recorded amongst the lower animals What is most surprising is that Voronoff employs heterografts obtained from chimpanzees, and yet the results published in his book appear to be far better than those obtained by Lespinasse, Morris, Lydston, and Kenneth Walker, when employing homografts obtained from human beings Voronoff himself seems somewhat astonished at this, and asks "Is the ape superior to man in the quality of his organs, in having a stronger physical constitution which is less marred by morbid inheritances such as arthritis, alcoholism, syphilis, &c ?" He states that thyroid grafting from simian glands has given him better results than the use of human thyroid And yet it is a well-recognised fact that heterografts taken from animals lower in the scale than chimpanzees are rapidly absorbed In a case described by Kenneth Walker in which he had the opportunity of examining human grafts which had been inserted, according to Voronoff's technique, five months previously, almost complete absorption of the testicular tissue had occurred Voronoff, on the other hand, found that a simian graft examined 15 months after implantation showed complete survival of the epithelial cells of the seminiferous tubules

Interesting as is "The Study of Old Age," it cannot be perused without a feeling of disappointment at the method of presentation We hear too much of the author's successes and too little of his failures No attempt has been made to analyse the thousand cases of animal grafting and the 600 human experiments, and to tabulate the results. In how many of these cases were the results of grafting negative, in how many partial, and in how many completely successful? Was any attempt made in the human cases to find evidence of success other than the statements of the patients, the increase of bodily weight, and the somewhat misleading testimony of the camera? Steinach, in presenting his results, spared no effort to furnish every possible piece of evidence that ingenuity could devise His animals before vasoligature were subjected to searching tests in order to determine their muscular activity, their muscular coordination, their sexual activity, and their intelligence These tests furnish data of great value in arriving at a conclusion as to the effect of the rejuvenation operation Similarly in assessing the results of vasoligature applied to human beings Steinach's followers have produced objective evidence of reactivation Peter Schmidt (Berlin), Knud Sande (Copenhagen), and H Benjamin (New York) have shown that high blood pressure decreases considerably after vasoligature, although it rises somewhat a few months later Again, Wilhelm (Santiago de Chile) has reported that as the result of vasoligature the number of red blood corpuscles and correspondingly the amount of hæmoglobin in the blood is considerably increased This phenomenon explains the distinct improvement in the processes of oxidation after vasoligature which A. Loewy and H Zondek (Berlin) have demonstrated by their measurements of the basal metabolism of different patients before and after operation Wilhelm, in addition to his observations on the blood, has also studied muscular contractility before and after vasoligature and has furnished dynometric measurements showing that the increase in muscular strength amounts to several kilogrammes and is lasting In comparing Steinach's work with that of Voronoff's we are not suggesting that vasoligature gives better results than grafting, the intention is rather to compare the methods that have been adopted by each worker in assessing results, and to emphasise the fact that whereas Steinach and his followers have spared no effort to obtain objective evidence of reactivation, Voronoff has contented himself with subjective evidence supplemented by the doubtful testimony of the camera He writes for the public rather than for the scientist, and this will probably explain why the scientist has on the whole neglected his work Ten cases examined before and after operation with every method of scientific precision are of more value in determining the effect of a graft than a hundred cases operated upon and reported upon, with only the data supplied by Voronoff However much admiration we may feel for his enthusiasm and industry, we cannot but regret that he has not written with that exactitude which is expected of every scientific worker

Annotations.

"Ne quid nimis"

THE END OF THE OUTBREAK OF ANTHRAX AT THE ZOO

THE first part of the story of the recent outbreak of anthrax at the Zoological Gardens is set out in a report presented on Feb 8th to the prosectorial committee of the Zoological Society by Dr. H. Harold Scott, pathologist to the Society It will be remembered that two elephants died within a few days at the end of last year and autopsies were immediately performed Smears taken from the blood and various tissues of Indiarini, the first elephant to die, showed the presence of large, rather square-ended bacilli Anaerobic cultures from the same material grew well, while the aerobic ones did not, this led at first to the inference that the *B pyogenes capsulatus* might be the cause of death At the autopsy on Sundermalah, the second victim, a sore covered by a scab was found on the internal aspect of the right elbow Smears made from the tissues underneath this scab and from the blood and various organs showed numerous bacilli suspicious of anthrax, but not quite typical in size or shape However, cultures and stained sections confirmed the *diagnosis* Prompt steps were taken to examine all the men who had been in contact with either of the animals, for cuts, sores, or spots, although at this stage the cause of death of the first elephant was still unproven Three men were found to have small cuts or fissures on their hands, and another a spot on the face Smears and cultures were put up from these, but, except for a growth of various types of staphylococcus, the results were negative On the same or following day, however, one of these men noticed a spot on his wrist which, when he returned to the Gardens four days later, had developed into a papule becoming vesicular with hæmorrhagic periphery, the whole rather smaller than a threepenny piece Smears and culture revealed the suspected *B anthracis* Since this individual had not come into any contact with Sundermalah, his infection proved that Indiarini also had died from anthrax, masked by a secondary or terminal infection Some six days after the autopsy on the second elephant, the assistant who had helped to perform it found spots on his arm from which the bacillus was recovered, and two other contacts also developed lesions All these cases were sent to St Thomas's Hospital, and their speedy recovery under treatment by Sclavo's serum is recorded by Mr R H Boggon in our columns this week

Several points of interest emerge from the outbreak, which was confined within such narrow limits by the prompt action of those in charge of the departments concerned It is clear that infection may readily occur by a hair follicle when all care has been taken to seal cuts, fissures, or more open wounds; one of the assistants, who at the second autopsy gave himself a fairly deep cut, which was vigorously treated, showed no sign of infection, whereas the lesions in the affected persons appear all to have started in hair follicles The incubation period was as much as six days in the two assistants who were exposed to infection only on one known occasion It is noteworthy also that the initial sore is quite painless and, as Mr Boggon points out, is only distinguishable from a septic spot by the history, the dark centre, and the surrounding pallor The gratifying response of all the patients to serum injection made discussion of treatment superfluous, since serum may not always be quickly available in remote districts, we would call attention to the excellent results achieved in Germany and in South Africa by the intravenous injection of salvarsan [1]

There remains the mystery as to the source of the anthrax infecting the elephants In neither case did the intestines show any inflammation, and the probability of the animals having been infected by mouth is anyhow slight Sections of the portal veins contain practically no bacilli, whereas those of the branches of the hepatic artery are crowded with them Dr Scott explains this contrast on the assumption that the systemic vessels carried the infection from the skin or lungs, and that infection did not gain entrance through the alimentary tract In spite of the absence of signs of intestinal infection, the oil cake supplied to the elephants was examined bacterially, with negative results Cultures made from fissures in the skin of the other five elephants in the Zoo also proved negative, and all these animals remain well; nor did examination of the pig oil with which the elephants are rubbed from time to time yield any information The cooperation of the Ministry of Health was sought immediately, but so far all efforts to trace the source of infection have failed This is of less moment since the outbreak was so swiftly recognised as to be confined to immediate contacts with the animals The value to the Zoological Society and to the public of a medically qualified superintendent of the Gardens and a pathologist of repute to superintend the autopsies is manifest, and we congratulate the Society on the vigilance of its staff

VERTIGO IN EPIDEMIC ENCEPHALITIS

IN the December number of *Brain* and, more briefly in a discussion at the Manchester Medical Society which we report on page 438 of this issue, Dr R I Poston draws attention to the occurrence of vertigo with other signs of vestibular disorder as an important symptom in epidemic encephalitis, or encephalitis lethargica This manifestation of the disease, he says, has not been thoroughly studied in this country. Quoting Gerlier's account of an "epidemic of paralysing vertigo" which occurred near Geneva in 1886 and was characterised by vertigo, muscular relaxation and paralysis, and ocular disturbances, especially ptosis, and recalling a somewhat similar disease ("Kubisagari") which seemed to be endemic in parts of Japan in 1887, Dr Poston puts the interesting question whether the pandemic of encephalitis lethargica of the last decade arose by spread of infection from earlier cases in Japan or Geneva In the 1921 epidemic in Alsace-Lorraine, Barré and Reys were impressed by the great number of patients who complained of vertigo, loss of equilibrium, and lateropulsion, and they regarded these labyrinthine phenomena as cardinal symptoms, second only in importance to the more common oculomotor manifestations The evidence of labyrinthine involvement which they obtained by means of the caloric and rotary tests showed that such a lesion was much more frequent than would be suspected from the patient's history, and they believe that vestibular phenomena are so frequent as to be worth searching for in every case of encephalitis Dr Poston quotes pathological evidence that the vestibular and neighbouring nuclei may be affected in epidemic encephalitis, and suggests that interference with vestibular function may account for many, if not all, of the oculomotor phenomena of the disease He mentions ten cases in which he found that the vestibular tests gave abnormal results, and concludes that the possibility of a previous, current, or impending attack of epidemic encephalitis should always be considered seriously in the differential diagnosis of cases showing disordered equilibration His full description of the very sensitive method of applying caloric and galvanic labyrinthine tests elaborated by Babinski, Weill, and Amado, will be of special interest to otologists Now that attention has been directed to vestibular symptoms in this disease, it is probable that they will be looked for, and found, more often than at present

DIAPHRAGMATIC HERNIA.

AMONG the interesting exhibits at the meeting of the Anatomical Society on Feb 4th were examples of varieties of diaphragmatic hernia (two occurring in cats), shown by Lady Briscoe and by Dr R H Hunter, while Dr. Beattie, of the Zoological Society, gave a communication on the same abnormality occurring in the lower animals The subject of diaphragmatic hernia has great clinical interest, and would bear investigation by competent observers as to the forms, extent, and relative positions of the herniated parts and the corresponding apertures Developmentally, also, more light might be thrown on the nature and position of the underlying abnormality in congenital cases The primitive cœlomic cavity in which the lung bud forms is directly continuous with that of the abdomen, but the secondary cavity within which it enlarges is another thing. This last has no direct connexion with the abdomen save through the remnant of the primitive cavity, which quickly closes But diaphragmatic herniæ are not by any means always a sequel of an unclosed opening of this sort, for they may take place through the œsophageal opening or through spaces elsewhere All these seem to admit of being brought into line under systematic investigation Some of the more monstrous kind, such as that shown by Lady Briscoe, where the liver was enveloped by the general pericardial sac, are apparently more straightforward developmentally than others which would seem simpler We must await the proper classification of these important anomalies

A ROUTINE TREATMENT FOR INFLUENZA

THE outlines of a scheme for the treatment of uncomplicated influenza appear in the *Munchener Medizinische Wochenschrift* for Feb 4th The author, Prof Trumpp, believes in supervising details which are often left to the judgment of relatives, and begins by laying down the conditions for nursing The sick-room, he points out, should be the sunniest and airiest in the house The patient should not face the light, and if the wall opposite him is too bright it should be draped with some dull material, though darkening of the whole room is undesirable A window should be open at all times to an extent that will bring the room temperature to 60° F by day and somewhat less by night. The better the ventilation the sooner the headache and malaise—and the pulmonary complications, if there are any—will depart Warm, dry rooms are anathema to Prof Trumpp A woollen bed-jacket or sweater guards against sudden chill, especially at night, and the play of draughts on the body is prevented by using only one door in the room, and by placing the bed so that it is not on any line of the triangle whose sides join the window, door, and fire Pillows should be firm, so as not to wrap an already suffering head, and the head end of the bed should be raised on blocks For uncomplicated cases Prof. Trumpp has a favourite mixture consisting of camphor. benzoic acid. and pyramidon The first and third of these he regards as bactericidal; camphor. besides being a heart stimulant. is an expectorant; pyramidon reduces the temperature, and benzoic acid is an adjuvant to camphor. The amount given is 0 01 to 0 05 g of camphor and the same quantity of benzoic acid, with 0 05 to 0·1 g. of pyramidon (according to age) in 0 5 g. lactose. this dose being taken three times a day in milk or water. Elimination of toxins by the skin and bowels plays an important part in Prof. Trumpp's treatment He disapproves of cold applications except an occasional cool pack for the feet but for patients with sound hearts recommends a daily bath at 105° F. lasting a minute with brisk gloving. After a vigorous rub-down with a towel the patient is whisked back to bed and given a glass of strong hot toddy. An enema at 75° F. should precede the first bath, being held for a minute and a half; besides acting as an aperient it also cools the body Laxative drugs, according to Prof Trumpp are better avoided. and he advises that fruit should be given instead, also recommending wholemeal bread in the diet The sceptical may feel doubtful whether the campaign in favour of ' roughage " in bread need thus be carried into the sick-room of patients with acute fever. and may accordingly prefer to employ aperients whose dose can be more easily regulated Prof Trumpp has no objection to the patient fasting for a day or two if he wishes, but suggests that to stimulate appetite the teeth should be cleaned every two hours and the mouth rinsed with plain water. Cereals and puddings may be given in moderate quantities, but the use of meat and meat broths is discouraged. Prof. Trumpp's views have, of course much in common with current practice in this country. They are chiefly interesting, perhaps, because he has worked out a comprehensive plan of treatment for all uncomplicated cases Very many practitioners must have similar plans; but, on the other hand, it is not uncommon for patients with mild influenza to undergo unnecessary discomfort, not because their medical attendant can only pay them a hurried visit but because he has not thought out a scheme of treatment which can be rapidly applied in a large proportion of his cases

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[1] The Treatment of Anthrax by Adrianus Pijper, THE LANCET, 1926, i, 88

THE HISTORY OF HARLEY STREET

THE Royal Society of Medicine held an enjoyable social evening on Feb. 21st, when Sir James and Lady Berry welcomed a large gathering of Fellows and guests In an address entitled Topographical and Medical Notes on Harley Street Mr. Percy Flemming gave an absorbing account of the process by which the medical profession took over the part of Marylebone that lies between Regent's Park and Wigmore-street He pointed out that the present phase of London's growth—the incorporation of surrounding towns and villages—began about 180 years ago Marylebone was one of these outlying villages but the growth of the city has long since obliterated the Fleet the Westbourne. and the Tyburn streams which once formed its boundaries These rivers now flow imprisoned in pipes under the roaring traffic from Hampstead to the Thames West Bourne and its overhead conduit in Sloane-square Station has recently been immortalised by *Punch* · Fleet or Hole Bourne is now a sewer under Ludgate-circus and Ty Bourne runs near the house of the Royal Society of Medicine under various passages and courts near Marylebone-lane. which was its left bank At the time of the Domesday Book Marylebone was unknown. and the land was part of Tyburn Manor The Harley-street district was the scene of public health enterprise in very early days for in 1236 the City authorities. in their search for a safe water-supply discovered the Tyburn and piped it where it was reinforced by a spring just in the dip by Stratford-place The critical time for the amenities of the place came in the reign of James I who sold Tyburn Manor. but kept what is now Regent s Park for his own use, with the result that this invaluable oasis is still in the safe hands of the Crown. A scheme was later put forward for dividing the area into building sites This evil was fortunately averted. but the southern end was partly built over. and one side of Harley-street is Crown property. and the other side privately owned to this day. The park was let out to farmers and there is contemporary evidence of its use by physicians for a kind of spa treatment. For instance. in 1772 a lady of 'Great Portland-street the patient of a Dr. Armstrong. was advised to take an early walk every morning and to drink milk at a farmhouse situated near Yard Gate Her son mentions the "elegant mansions" of Cavendish-square as the border of the town and the open country. This and its neighbouring squares were laid out in 1718. and soon became the home of the aristocracy. There would almost certainly have been a sprinkling of general practitioners here then but the consultant district was in the City. round about Broad-street. New Bridge-street, and Finsbury-circus. The migration westward halted for a space in Bloomsbury. and for some time after that the favoured spot was Hanover-square Only the later 'thirties saw the start of the Harley-street district. when a few consultants moved to Cavendish-square. The numbers slowly increased until in the 'sixties Harley-street began to be regarded as the right place for a consultant to live Sir William Jenner was actually the first to arrive; he entered No 8 in 1851. Mr. Flemming concluded by remarking on a trickle of medical men across Marylebone-road into Regent's Park. and speculated whether this foreshadowed a general migration He illustrated his lecture with some interesting prints and maps of old Marylebone, the originals of which. with many others were displayed in the Society's Library. He has set future speakers a high standard to live up to for not only has he collected his material with expert patience and skill, but he possessed the ability to display it with humour and feeling. As long as such good fare is provided at the Society s social evenings their great popularity will never wane.

TREATMENT OF RINGWORM IN YOUNG CHILDREN

THOUGH ringworm of the scalp can generally be cured in course of time by the conscientious application of ointments. it is agreed that measures against the organism are more likely to be successful if the infected hair can be completely removed as the first step in the treatment For this purpose it is usual to give a nicely calculated dose of X rays, and the results are. on the whole. satisfactory. Most dermatologists, however refrain from irradiating the scalp where the patients are small children, and with young subjects it is the current practice to dispense with epilation and to rely on the action of time-honoured remedies This is undoubtedly inconvenient, and an attempt has lately been made to overcome the difficulties inherent in giving infants an epilatory dose of X rays. In the *British Journal of Dermatology and Syphilis* for last December. Dr J. M H. Macleod describes a special couch and immobilising cap designed by Mr. S Cochrane Shanks radiologist at Charing Cross Hospital for the treatment of ringworm of the scalp in children under 3 years of age The article is somewhat technical and its main details would be likely to interest only the actual operator, but the summary of results in tabular form deserves attention Of a total of 276 patients 52 were between 1 and 2 years of age. and 224 between 2 and 3 In none of them was there a single serious mishap such as a resulting burn or permanent alopecia. nor was a second irradiation required in a single case. The results as regards technique are therefore beyond criticism and there is no reason to suppose that damage is caused to the brain by any action of the rays But the fact remains that young children may be frightened by the noise and sparking of the apparatus, and if to this potential cause of alarm is added forcible constraint by an immobilising cap, and the use of a special couch on which the child is "strapped after being rolled tightly in a blanket," we have a combination of impressions which may fairly be described as terrifying, and which, if they do not produce an immediate effect, may well be stored up as interesting material for the psycho-analysts of a future generation By a coincidence it happens that the claims of an alternative method of epilation are at present being put forward We recently reported[1] a meeting of the Section of Medicine at the Royal Academy of Medicine in Ireland, at which Dr Maurice Drummond demonstrated three cases in which the hair had been removed by single doses of thallium acetate, and last week we published[2] a more comprehensive account of the procedure, based on 24 cases, by Dr G B Dowling and Dr R. Kelman It is unnecessary to repeat the details of technique which are given in these reports The use of thallium acetate for producing baldness is by no means new, for Sabouraud, of Paris, experimented with it 30 years ago and advised against its employment as being both uncertain and unsafe In the meantime, however, Prof Buschke, of Berlin, has worked out a standard dose of from 8 to 9 mg per kg of body-weight, and this he describes as free from danger and almost invariably effective in its epilating action He lays great stress, however, on the necessity for using only a chemically pure and biologically standardised preparation, and this he obtains from one firm of chemists only Buschke's work has been repeated on a large scale in the United States and also in Mexico, where there was a shortage of X ray equipment during the late war. The claims put forward have been less cautious than those of Dr Dowling, who freely admits that he has noticed mild toxic symptoms in a number of cases ; in a discussion at the Section of Dermatology of the Royal Society of Medicine (which we report on p 438 of this issue) he goes so far as to suggest that it might be well for patients to remain in bed for about three weeks after taking their single dose of thallium The preparation used by Dr Dowling and Dr. Kelman was not biologically standardised, but it seems unlikely that even standardisation can wholly prevent undesirable toxic symptoms arising from administration of a drug which is in reality used for its poisonous effect on the hairs or the nerves supplying them Possibly, as Dr. H C Semon suggests, some means may be found of neutralising objectionable toxicity In the meantime it is interesting to note the experiences of Dr S Monckton Copeman, who gave the Section of Dermatology a description of the effects of small repeated doses of thallium acetate on patients suffering from cancer, and those of H R Olivier, in France, who has recently reported[3] on chronic intoxication of animals with the drug Olivier finds that prolonged administration to rats engenders a sort of refractive state in which hair is eventually replaced, and he also reports the production of benign papillomatous tumours of the stomach It may be thought that these results are barely relevant since when the drug is used for children not more than a single dose is given Their merit, however, is that they suggest extreme caution Thallium is a poison with physiological effects resembling those of lead, and though ringworm of the scalp is an economic nuisance it in no way endangers life Cases of idiosyncrasy may possibly be met, and even in ordinary cases the treatment requires great care It will be very unfortunate if thallium comes into general use or misuse before it has been properly tested under the best conditions

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[1] The Lancet, Feb 12th, p 343

[2] The Lancet, Feb 19th, p 389

[3] Comptes Rendus de la Société de Biologie, vol xcvi, No 3

EARLY AMERICAN SURGERY.

The Hunterian Society made a wise choice when they asked Prof J M T Finney of Baltimore to deliver the Hunterian Lecture for 1927 Prof Finney's recent visit was welcome not only because he is well known in England for his work at Johns Hopkins Hospital and for distinguished service with the American Expeditionary Force during the late war, but also because he represents that section of opinion in the United States which looks for and finds community rather than antagonism in the aims and ethics of Americans and English This attitude was expressed when he chose to address the Hunterian Society on the Influence of John Hunter on Early American Surgery, a subject which not only gave him a chance of paying high tribute to a great surgeon but also of laying emphasis—where it should be laid—on the common origin of our traditions In the present issue of The Lancet (p 469) we conclude the publication of Prof Finney's lecture, and those who read it will find an able summary of the lives and work of some of the surgeons who flourished in the American "Hunterian Era" How directly many of these men were influenced by Hunter will seem surprising to those who do not know that large numbers of young Americans came to Europe—even soon after the War of Independence—to learn their trade in the continental and British schools Some of the more notable were pupils of the Hunters in London and even members of their household Of these an imporant example was William Shippen, jun , afterwards a founder of the Philadelphia Medical College, from whose diary Prof Finney makes some quotations which are especially interesting as the period covered is one which is but little described in the books dealing with Hunter's life Hunter's successful work and the record of his life are, however, fairly familiar to the medical profession in this country, and perhaps the special merit of Prof Finney's lecture is that it describes for his English hearers some of the achievements—less often recognised—which stand to the credit of our surgical predecessors in the New World

THE SALE OF ULTRA-VIOLET LAMPS

A pronouncement on the sale of apparatus for the generation of ultra-violet rays has just been made by the Council on Physical Therapy of the American Medical Association [1] The Council states that distribution of these generators to the public for self-treatment is undesirable on the following grounds —

1 The uninformed public could not take the proper precautions in administering treatments and, as a result, severe general burns or grave injury to the eyes might ensue.

2 Those not familiar with the possibilities of such apparatus would be led to place unwarranted confidence in the therapeutic value of such treatment by the claims that might be made in the literature advertising such generators, and to undertake to treat serious conditions not amenable to such treatment

3 The unrestricted possession of such therapeutic means would tend to deprive people of expert diagnosis by encouraging them to make self-diagnoses

4 Such practice would encourage the sale of useless and fraudulent lamps which would be advertised as generators of ultra-violet rays, since the public would have no means at its disposal to determine the quality or quantity of the radiant energy emitted by such lamps

For these reasons, says the Council, the sale or the advertising for sale, directly to the public, of a generator of ultra-violet energy is detrimental to the public welfare, and apparatus made by firms whose policy is thus detrimental will not in future be included in the official list of accepted devices for physical treatment Medical men generally will support this action The apparent ease with which ultra-violet apparatus can be manipulated may lead people to think that they can therefore give themselves treatment Needless to say, this impression would be fostered by traders anxious only to increase their output There is, however, a good case here for protecting the public from the dangers of ultra-violet rays During the next few years some late effects of overdosage (such as cataract) may become apparent —just as occurred in the case of X ray therapy It is to be hoped that the lead given by the American Medical Association will be followed by other powerful medical bodies

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[1] Jour Amer Med Assoc , Jan. 22nd

THE ROYAL SOCIETY

THE list of candidates for the Fellowship of the Royal Society who have been recommended by the Council for election this year, includes many names familiar to our readers Prof E V Appleton holds the Wheatstone Chair of Physics at King's College in the University of London, Dr T Graham Brown, professor of physiology in the Welsh National School of Medicine, has explored the spinal reflex in decerebrate mammals; while Mr R H Burne, Physiological Curator of the Museum of the Royal College of Surgeons of England, is known for his work on the comparative anatomy of molluscs, fishes, and mammals Dr James Chadwick is engaged in the study of radio-activity in the Cavendish Laboratory at the University of Cambridge, Prof James Kendall holds the Chair of Chemistry in Columbia University, New York Dr P P Laidlaw, formerly Gordon lecturer in pathology at Guy's Hospital Medical School, is now on the staff of the National Institute at Hampstead His recent activities in the investigation of distemper, as also those of his colleague at the Institute, Mr Otto Rosenheim on the parent substance of vitamin D, are referred to in another column The more distant universities are honoured in the persons of Mr A A Lawson, formerly lecturer at Glasgow, and now professor of botany in Sydney, and Mr Meghnad Saha, professor of physics at Calcutta Mr. J S B Stopford, professor of anatomy in the University of Manchester and Dean of the Medical Faculty, in addition to purely academic research, has initiated work on the regeneration of nerves with results which proved of notable value in neurological surgery during and after the war Finally, Dr C M Wenyon, director-in-chief of the Wellcome Bureau of Scientific Research, is responsible for differentiation of intestinal parasites which has greatly facilitated the diagnosis of protozoal infections

HEALTH ORGANISATION OF THE LEAGUE OF NATIONS

UNDER the auspices of the Health Organisation of the League of Nations a further visit to Great Britain of public health officials from 12 different countries began on Monday last Representatives of Belgium, China, Czecho-Slovakia, France, Germany, Greece Italy Lithuania, Poland, Rumania, Sweden, and Jugo Slavia are taking part in the present interchange which will last six weeks The first week is being spent in London, in visits to the various institutions of the Metropolitan Asylums Board in connexion with the control of infectious diseases, and in the study of London water-supply and housing schemes Next week the public health officials will split up into groups to visit ports such as Liverpool and Glasgow, large industrial centres such as Birmingham and Bradford, a representative residential borough adjoining London—Hornsey has been selected—and certain rural areas in Berkshire The officials will later reassemble in London for the final week which will include inspection of meat and food markets, port sanitation, and visits to various institutions in connexion with medical research, eugenics, industrial psychology, tropical, naval and military hygiene, bacteriological laboratories, and the like The party will probably leave England on April 2nd and meet again in Geneva for the final conference which includes a brief study of the working of the League and in particular, of its Health Organisation Practically all countries, including the United States, Russia and Turkey, as well as the Members of the League, take part in these interchanges, which are attended by roughly 100 medical officers a year, and are carried out with the financial assistance of the Rockefeller Foundation. This is the fifth occasion on which a number of foreign doctors have been here to study British public health services, and similar interchanges have taken place in most European countries, in South and Central America, the United States, Canada, West Africa, and Japan

Colonel John Graham Martin, M D, has been appointed honorary physician to the King This reward comes after long years of meritorious service in the Territorial Army Medical Corps, in which Colonel Martin is now A D M S of the 55th (West Lancashire) Division Dr Martin, who practises in Liverpool, saw service in the South African War as a civil surgeon and in the European War, when he attained his present position It is understood that this is the first time this honour has been granted to a Territorial officer

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg -Lt J W Tighe to be Surg -Lt -Comdr

Surg -Comdr W R Harrison is placed on ret. list with rank of Surg -Capt

ROYAL NAVAL MEDICAL RESERVE

Prob Surg -Sub-Lts to be Surg -Sub-Lts H G Ungley and D S Buchanan

ROYAL ARMY MEDICAL CORPS

Lt -Col P G Easton retires on ret pay

Maj J J H Beckton is placed on the half pay list on account of ill-health

Capts to be Majs · D S Martin, W L E Reynolds (Prov), W K Campbell (Prov), and C G G Keane

Capt S J C Holden to be Maj

Capt A J Bado, R A.M C, to be Divl Adjt 43rd (Wessex) Div, vice Capt A Rodd to half pay

Temp Capt S E Elphick relinquishes his commn on account of ill-health, and retains the rank of Capt

Lt (on Prob) R V Franklin, from the secd list, is restd to the estabt

Lts (on prob) confirmed in their rank F P M Anderson, J D Borham, P F Palmer, D Bluett, C E Eccles, F M Collins, J. A Chapel

MILITIA

Maj F Jefferson relinquishes his commn and retains the rank of Maj

TERRITORIAL ARMY

The King has approved of the following appointment —To be Honorary Physician to His Majesty Col J G Martin, 55th (W Lanc) Div, in succession to Col G H Edington (ret)

Capt A H Fullerton to be Maj (Prov), and Lts W Simpson, R N Craig (Prov), and R S Creed to be Capt (Prov)

INDIAN MEDICAL SERVICE

The King has approved the retirement of Lt -Col W D H Stevenson

Lts Madhav Krishna Kelavkar, Gurdial Singh Gill, and Ranjit Sen to be Capts

Pran Nath to be Temp Lt

LEEDS PENSIONS HOSPITAL.—The new Ministry of Pensions Hospital at Chapel Allerton is now practically complete and will be opened next month The nucleus of the institution, which is described as the finest Ministry of Pensions Hospital in the country, was Gledhow Grove, the former residence of Mr F J Kitson, which has been converted into administrative headquarters The new buildings are of an artificial stone composed of washed gravel, cement, and sand, of local manufacture, now used for the first time on a large scale, the whole of the timber comes from the Dominions In addition to the usual departments, the buildings, which will hold 260 patients, include a recreation hall, a gymnasium, tennis courts, football ground, and recreational workshops which will be rented by firms making artificial limbs there is no reason to suppose that damage is caused to the brain by any action of the rays But the fact remains that young children may be frightened by the noise and sparking of the apparatus, and if to this potential cause of alarm is added forcible constraint by an immobilising cap, and the use of a special couch on which the child is "strapped after being rolled tightly in a blanket," we have a combination of impressions which may fairly be described as terrifying, and which, if they do not produce an immediate effect, may well be stored up as interesting material for the psycho-analysts of a future generation By a coincidence it happens that the claims of an alternative method of epilation are at present being put forward We recently reported[1] a meeting of the Section of Medicine at the Royal Academy of Medicine in Ireland, at which Dr Maurice Drummond demonstrated three cases in which the hair had been removed by single doses of thallium acetate, and last week we published[2] a more comprehensive account of the procedure, based on 24 cases, by Dr G B Dowling and Dr R Kelman It is unnecessary to repeat the details of technique which are given in these reports The use of thallium acetate for producing baldness is by no means new, for Sabouraud, of Paris, experimented with it 30 years ago and advised against its employment as being both uncertain and unsafe In the meantime, however, Prof Buschke, of Berlin, has worked out a standard dose of from 8 to 9 mg per kg of body-weight, and this he describes as free from danger and almost invariably effective in its epilating action He lays great stress, however, on the necessity for using only a chemically pure and biologically standardised preparation, and this he obtains from one firm of chemists only Buschke's work has been repeated on a large scale in the United States and also in Mexico, where there was a shortage of X ray equipment during the late war. The claims put forward have been less cautious than those of Dr Dowling, who freely admits that he has noticed mild toxic symptoms in a number of cases ; in a discussion at the Section of Dermatology of the Royal Society of Medicine (which we report on p 438 of this issue) he goes so far as to suggest that it might be well for patients to remain in bed for about three weeks after taking their single dose of thallium The preparation used by Dr Dowling and Dr Kelman was not biologically standardised, but it seems unlikely that even standardisation can wholly prevent undesirable toxic symptoms arising from administration of a drug which is in reality used for its poisonous effect on the hairs or the nerves supplying them Possibly, as Dr. H C Semon suggests, some means may be found of neutralising objectionable toxicity In the meantime it is interesting to note the experiences of Dr S Monckton Copeman, who gave the Section of Dermatology a description of the effects of small repeated doses of thallium acetate on patients suffering from cancer, and those of H R Olivier, in France, who has recently reported[3] on chronic intoxication of animals with the drug Olivier finds that prolonged administration to rats engenders a sort of refractive state in which hair is eventually replaced, and he also reports the production of benign papillomatous tumours of the stomach It may be thought that these results are barely relevant since when the drug is used for children not more than a single dose is given Their merit, however, is that they suggest extreme caution Thallium is a poison with physiological effects resembling those of lead, and though ringworm of the scalp is an economic nuisance it in no way endangers life Cases of idiosyncrasy may possibly be met, and even in ordinary cases the treatment requires great care It will be very unfortunate if thallium comes into general use or misuse before it has been properly tested under the best conditions

EARLY AMERICAN SURGERY.

THE Hunterian Society made a wise choice when they asked Prof J. M T Finney of Baltimore to deliver the Hunterian Lecture for 1927 Prof Finney's recent visit was welcome not only because he is well known in England for his work at Johns Hopkins Hospital and for distinguished service with the American Expeditionary Force during the late war, but also because he represents that section of opinion in the United States which looks for and finds community rather than antagonism in the aims and ethics of Americans and English This attitude was expressed when he chose to address the Hunterian Society on the Influence of John Hunter on Early American Surgery, a subject which not only gave him a chance of paying high tribute to a great surgeon but also of laying emphasis—where it should be laid—on the common origin of our traditions In the present issue of THE LANCET (p 469) we conclude the publication of Prof Finney's lecture, and those who read it will find an able summary of the lives and work of some of the surgeons who flourished in the American "Hunterian Era" How directly many of these men were influenced by Hunter will seem surprising to those who do not know that large numbers of young Americans came to Europe—even soon after the War of Independence—to learn their trade in the continental and British schools Some of the more notable were pupils of the Hunters in London and even members of their household Of these an imporant example was William Shippen, jun , afterwards a founder of the Philadelphia Medical College, from whose diary Prof Finney makes some quotations which are especially interesting as the period covered is one which is but little described in the books dealing with Hunter's life Hunter's successful work and the record of his life are, however, fairly familiar to the medical profession in this country, and perhaps the special merit of Prof Finney's lecture is that it describes for his English hearers some of the achievements—less often recognised—which stand to the credit of our surgical predecessors in the New World

THE SALE OF ULTRA-VIOLET LAMPS

A PRONOUNCEMENT on the sale of apparatus for the generation of ultra-violet rays has just been made by the Council on Physical Therapy of the American Medical Association.[1] The Council states that distribution of these generators to the public for self-treatment is undesirable on the following grounds :—

1 The uninformed public could not take the proper precautions in administering treatments and, as a result, severe general burns or grave injury to the eyes might ensue.

2 Those not familiar with the possibilities of such apparatus would be led to place unwarranted confidence in the therapeutic value of such treatment by the claims that might be made in the literature advertising such generators, and to undertake to treat serious conditions not amenable to such treatment

3 The unrestricted possession of such therapeutic means would tend to deprive people of expert diagnosis by encouraging them to make self-diagnoses

4 Such practice would encourage the sale of useless and fraudulent lamps which would be advertised as generators of ultra-violet rays, since the public would have no means at its disposal to determine the quality or quantity of the radiant energy emitted by such lamps

For these reasons, says the Council, the sale or the advertising for sale, directly to the public, of a generator of ultra-violet energy is detrimental to the public welfare, and apparatus made by firms whose policy is thus detrimental will not in future be included in the official list of accepted devices for physical treatment Medical men generally will support this action The apparent ease with which ultra-violet apparatus can be manipulated may lead people to think that they can therefore give themselves treatment Needless to say, this impression would be fostered by traders anxious only to increase their output. There is however, a good case here for protecting the public from the dangers of ultra-violet rays During the next few years some late effects of overdosage (such as cataract) may become apparent —just as occurred in the case of X ray therapy. It is to be hoped that the lead given by the American Medical Association will be followed by other powerful medical bodies

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[1] THE LANCET, Feb 12th, p 343

[2] THE LANCET, Feb 19th, p 389

[3] Comptes Rendus de la Société de Biologie, vol xcvi, No 3

[1] Jour Amer Med Assoc , Jan 22nd.

THE ROYAL SOCIETY.

THE list of candidates for the Fellowship of the Royal Society who have been recommended by the Council for election this year, includes many names familiar to our readers. Prof. E V. Appleton holds the Wheatstone Chair of Physics at King's College in the University of London; Dr. T. Graham Brown. professor of physiology in the Welsh National School of Medicine has explored the spinal reflex in decerebrate mammals; while Mr. R. H. Burne, Physiological Curator of the Museum of the Royal College of Surgeons of England. is known for his work on the comparative anatomy of molluscs, fishes. and mammals. Dr. James Chadwick is engaged in the study of radio-activity in the Cavendish Laboratory at the University of Cambridge; Prof. James Kendall holds the Chair of Chemistry in Columbia University, New York. Dr. P. P. Laidlaw, formerly Gordon lecturer in pathology at Guy's Hospital Medical School, is now on the staff of the National Institute at Hampstead. His recent activities in the investigation of distemper. as also those of his colleague at the Institute. Mr Otto Rosenheim on the parent substance of vitamin D, are referred to in another column The more distant universities are honoured in the persons of Mr A. A. Lawson formerly lecturer at Glasgow, and now professor of botany in Sydney, and Mr. Meghnad Saha. professor of physics at Calcutta Mr. J. S B Stopford, professor of anatomy in the University of Manchester and Dean of the Medical Faculty, in addition to purely academic research, has initiated work on the regeneration of nerves with results which proved of notable value in neurological surgery during and after the war Finally. Dr. C. M Wenyon. director-in-chief of the Wellcome Bureau of Scientific Research. is responsible for differentiation of intestinal parasites which has greatly facilitated the diagnosis of protozoal infections

HEALTH ORGANISATION OF THE LEAGUE OF NATIONS

UNDER the auspices of the Health Organisation of the League of Nations a further visit to Great Britain of public health officials from 12 different countries began on Monday last Representatives of Belgium. China, Czecho-Slovakia. France, Germany, Greece Italy. Lithuania. Poland, Rumania. Sweden, and Jugo Slavia are taking part in the present interchange which will last six weeks The first week is being spent in London, in visits to the various institutions of the Metropolitan Asylums Board in connexion with the control of infectious diseases and in the study of London water-supply and housing schemes. Next week the public health officials will split up into groups to visit ports such as Liverpool and Glasgow, large industrial centres such as Birmingham and Bradford. a representative residential borough adjoining London—Hornsey has been selected—and certain rural areas in Berkshire. The officials will later reassemble in London for the final week. which will include inspection of meat and food markets port sanitation, and visits to various institutions in connexion with medical research eugenics, industrial psychology. tropical, naval and military hygiene, bacteriological laboratories. and the like The party will probably leave England on April 2nd and meet again in Geneva for the final conference. which includes a brief study of the working of the League and in particular, of its Health Organisation. Practically all countries, including the United States Russia and Turkey, as well as the Members of the League, take part in these interchanges which are attended by roughly 100 medical officers a year. and are carried out with the financial assistance of the Rockefeller Foundation. This is the fifth occasion on which a number of foreign doctors have been here to study British public health services, and similar interchanges have taken place in most European countries, in South and Central America, the United States, Canada, West Africa, and Japan

Colonel John Graham Martin. M D.. has been appointed honorary physician to the King. This reward comes after long years of meritorious service in the Territorial Army Medical Corps, in which Colonel Martin is now A D M.S of the 55th (West Lancashire) Division. Dr. Martin who practises in Liverpool saw service in the South African War as a civil surgeon and in the European War, when he attained his present position It is understood that this is the first time this honour has been granted to a Territorial officer.

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg-Lt. J. W. Tighe to be Surg-Lt.-Comdr.

Surg-Comdr. W R. Harrison is placed on ret. list with rank of Surg-Capt.

ROYAL NAVAL MEDICAL RESERVE.

Prob Surg-Sub-Lts. to be Surg-Sub-Lts. H. G Ungley and D S. Buchanan.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. P. G Easton retires on ret. pay.

Maj J. J H. Beckton is placed on the half pay list on account of ill-health.

Capts. to be Majs.. D S Martin, W. L E Reynolds (Prov), W. K. Campbell (Prov.), and C G G Keane.

Capt. S J. C Holden to be Maj

Capt. A. J. Bado R.A.M.C, to be Divl Adjt. 43rd (Wessex) Div, vice Capt. A. Rodd to half pay.

Temp Capt. S. E Elphick relinquishes his commn. on account of ill-health and retains the rank of Capt.

Lt. (on Prob) R. V. Franklin, from the secd. list, is restd. to the estabt

Lts. (on prob) confirmed in their rank: F. P. M Anderson, J D Borham, P F Palmer, D Bluett, C E Eccles, F. M. Collins, J. A. Chapel.

MILITIA.

Maj F Jefferson relinquishes his commn. and retains the rank of Maj.

TERRITORIAL ARMY.

The King has approved of the following appointment:— To be Honorary Physician to His Majesty: Col. J G. Martin, 55th (W Lanc.) Div., in succession to Col. G. H Edington (ret.)

Capt. A. H. Fullerton to be Maj (Prov.), and Lts. W. Simpson, R N. Craig (Prov.), and R. S Creed to be Capt. (Prov.)

INDIAN MEDICAL SERVICE

The King has approved the retirement of Lt.-Col. W. D H. Stevenson.

Lts Madhav Krishna Kelavkar, Gurdial Singh Gill, and Ranjit Sen to be Capts.

Pran Nath to be Temp Lt.

LEEDS PENSIONS HOSPITAL.—The new Ministry of Pensions Hospital at Chapel Allerton is now practically complete and will be opened next month. The nucleus of the institution which is described as the finest Ministry of Pensions Hospital in the country. was Gledhow Grove, the former residence of Mr. F. J. Kitson, which has been converted into administrative headquarters. The new buildings are of an artificial stone composed of washed gravel, cement and sand of local manufacture, now used for the first time on a large scale. the whole of the timber comes from the Dominions. In addition to the usual departments, the buildings, which will hold 260 patients, include a recreation hall, a gymnasium, tennis courts, football ground, and recreational workshops which will be rented by firms making artificial limbs.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXII —TREATMENT OF POISONING.

IN the treatment of poisoning, acute and chronic, pharmacology must be the keynote of procedure, common sense goes a long way, but without a sound knowledge of the action of poisons and drugs, and a moderate armamentarium, the practitioner may lose the patient

(1) ACUTE POISONING

The steps to be taken are three · first, to get rid of the poison out of the system, secondly, to neutralise or render harmless what cannot be removed, and thirdly, to meet the damage already done and to mitigate general symptoms It is obvious that these steps will frequently be taken simultaneously

Elimination of the Poison

Are there any cases in which the attempt to eliminate the poison should not be made ? It is generally stated that emetics and the stomach-tube are to be avoided in corrosive poisoning, but it is fairly evident that, where the situation is such that the stomach cannot be emptied, the death warrant is signed It is, however, of no use to pass a stomach-tube on a dying man In any case, then, where there is a reasonable opportunity, we must use either stomach-tube or emetic But emetic and stomach-tube are by no means antagonistic I have seen cases where an emetic has been given and the attempt to pass the stomach-tube shortly afterwards has promptly determined vomiting; also cases where, after washing out, an emetic left in the stomach has cleared the residue, a quantity by no means negligible With unconscious patients in narcotic poisoning emetics cannot be swallowed and, even when administered hypodermically, act badly Here the stomach-tube is essential, but it is just in these cases that the passage of the tube is extraordinarily difficult Taking poisoning cases generally, it may be said that it is best to use the tube and wash the stomach out well

Details of the use of the stomach-tube are hardly necessary The apparatus needs a long piece of tubing and a funnel, which is raised or depressed according as the water is to flow into or out of the stomach The use of a gag, the finger passed along the tongue to the back of the pharynx, and the tube passed along this usually made the insertion easy A movement of the head slightly forwards may ease the passage After the insertion it is safer to pour water into the stomach before withdrawing the contents Substitutes for a specially manufactured stomach-tube may have to be found I have heard of one case of strychnine poisoning in a child where life was saved by the expedient of cutting off the nozzle of a Higginson's syringe and passing the tube as far as it would reach and of driving water into the stomach till it flowed back outside the tube

Emetics may be divided into two classes, those stimulating the vomiting centre and those irritating the gastric mucous membrane, so that vomiting is caused reflexly

Apomorphine is alone used of the drugs of the former class It has two great advantages over all other emetics, that it can be given hypodermically and that it acts *quickly* It should be used in full hypodermic dose of one-tenth of a grain or more if the patient is of big size It is best *carried* in tablet form as the official hypodermic injection does not keep Vomiting should *occur* in a few minutes After vomiting the patient tends to sleep, for apomorphine is distinctly narcotic as well as emetic In some poisonings this last action is by no means beneficial, but even in morphine poisoning it is customary to use this drug, though there is always a question whether the apomorphine is going to do its own work or to aid and abet its sister drug Of the other class of emetics, mustard (a dessertspoonful in a pint of water) is active, and has the advantage of being a household remedy Zinc sulphate is the most efficient of the purely pharmacopœial drugs, its dose of half a drachm may be exceeded, but if this is *done, one* is bound to continue its administration till vomiting *does occur* Copper sulphate is good, but is more likely to leave traces of irritation than is zinc sulphate, Antimony (in the form of tartar emetic) and ipecacuanha act too slowly to be satisfactory emetics The latter is safer and may be *at* hand, in *the* form of ipec wine, as a household remedy, if so the full emetic dose, according to age, should be given, followed by teaspoonful doses at intervals of ten minutes till vomiting occurs, but in poisoning cases such slow action is dangerous Common salt in strong solution, as strong as the water will dissolve it, may fail, but the use of this, combined with tickling of the throat, needs as little special apparatus and material as does any method of causing vomiting

The addition of suitable purgatives to emetics given is not to be forgotten These prevent absorption, especially where some antidote is being used which causes a temporary precipitation of the poison.

Gaseous poisons have to be eliminated by the respiratory tract and the elimination is best procured by the use of oxygen, this should be given, not by the haphazard method of holding a tube near the face, but with a mask such as is used for gas administration

A mixture of 95 per cent of oxygen and 5 per cent of carbon dioxide acts best, for the carbon dioxide in this excess stimulates the respiratory centre to act more vigorously In coal-gas poisoning carbon monoxide fixes itself to the hæmoglobin of the red blood corpuscles and is difficult to displace In poisoning by prussic acid an even more difficult problem arises, for this inactivates all the tissues it meets, so that the *transmission of oxygen becomes* very difficult

The introduction of poisons *hypodermically* takes away any chance of elimination by emetics or stomach-tube and throws all the stress of treatment on neutralisation in the tissues or on elimination by the natural channels, and on support of the patient till the poison wears itself out

Neutralisation of the Poison

A knowledge of pharmacology here becomes essential Many poisons fall into classes and can be treated accordingly, others need individual consideration

We have no antidote which counteracts all poisons, but both fatty and albuminous material form a layer on the walls of the digestive tract, protecting them, and actually attach themselves to many poisons of the corrosive and irritant type White of egg, milk, oils, and linseed tea are valuable in this class Chalk, lime, magnesia and water in which soap is suspended, act by neutralising acids and precipitating insoluble salts of the earthy metals Charcoal delays the action of many poisons both alkaloidal and irritant

Many of the above-mentioned antidotes are to be found in the home and none are likely to do harm, unless it be *oils in the case of phosphorus* poisoning

Alkaloids —Death in most poisons of the alkaloidal type is due to paralysis of the respiratory centre, and drugs which sustain this centre, such as caffeine and strychnine, are largely used

Tea and coffee may be given, if necessary by rectum Apart from their stimulant action, the tannin in them, when given by the stomach, acts as a true antidote, for it precipitates alkaloids Tannic acid may also be given in pure form or in one of its vegetable combinations It is obvious that the precipitated alkaloid must be hurried out of the intestine, it is only precipitated, not destroyed Potassium permanganate is given in weak solution, because it oxidises alkaloids and destroys them A weak solution of this is often used to wash out the stomach, especially in opium poisoning

Strong alkalies are neutralised by weak acids such as vinegar; strong acids by weak alkalies such as carbonates and magnesium oxide Irritant poisons are held up by albuminous and fatty material

Some Individual Poisons

Carbolic acid and its relatives, all of which are narcotic as well as corrosive, easily hold the *first* place for frequency, and so for importance Sulphates, best given in the form of magnesium sulphate, render inert all the carbolic acid with which they come in contact, whether in the *alimentary* tract or in the body tissues Till the *sulphates in the body* are overcome, the carbolic group cannot act on the tissues

Oxalic acid needs not only neutralisation but neutralisation with some salt which throws down *insoluble oxalate*

Calcium salts in the form of chalk and lime water are satisfactory, but potassium and sodium are to be avoided

Morphine poisoning is now rare. Artificial respiration should be tried where breathing fails, but it is probable that the very active exercise that is sometimes practised, especially when combined with exposure tends to exhaust the patient and to spread the poison

Strychnine Poisoning.—Here the hope of recovery depends on the stomach being emptied before the spasms become severe, and early injection of apomorphine and early washing out of the stomach mean much. The use of chloroform anæsthesia to allay spasm is justified though it is not without risk. Even if unsuccessful in saving life it does allay the mental anguish which is one of the features of this poisoning

Belladonna may to some extent be met by pilocarpine injection, but pilocarpine may weaken the heart and the dose must not be large Fortunately belladonna cases usually do well.

Phosphorus poisoning has largely disappeared with more stringent regulations as to the use of white phosphorus in matches. Oils are here to be avoided Oxidising agents as weak liquor hydrogen peroxidi or sanitas may be given. Copper sulphate is a suitable emetic, for copper is precipitated in metallic form on the particles of phosphorus and renders them inert. Three grains may be given every five minutes till vomiting occurs

Arsenic poisoning is usually met by an attempt to precipitate the poison as an insoluble arsenite This is said to be brought down when ferric hydroxide is given. A drachm of tinctura ferri perchloridi in half an ounce of water is mixed, on the spot, with half a drachm of bicarbonate of soda dissolved in half an ounce of water and the mixture, which contains a bulky precipitate of ferric hydroxide, is swallowed The same dose is taken several times at intervals of five or ten minutes.

General Treatment

It is too often forgotten that the patient himself must be carefully looked after; this may occur in the private house as well as in the accident room of an institution. If the sufferer is doomed we must at least make him comfortable, and, even if his fate hangs in the balance a dose of morphia may help by lessening shock Too frequently one sees a patient left in a cold collapsed condition, a condition probably accentuated by water dashed over him for stimulant purposes or spilled when the stomach has been washed out Warmth is essential if the patient is to be brought round Hot blankets and rectal injections of hot fluids help to ward off collapse.

Preparations for Emergencies

Every doctor in practice should have ready for emergency a stomach-tube with funnel. glycerine, gag, hypodermic syringe, morphine and apomorphine in tablets, zinc suphate, magnesium sulphate, charcoal, potassium permanganate, iron perchloride, and sodium bicarbonate. Any case of poisoning may be more serious than it appears at first sight. Treat it early and actively, and do not send it to anyone else, unless he is very easily reached or has apparatus more efficient than you have. Time means life.

(2) Chronic Poisoning.

Of this little need be said, for in most cases to recognise the cause is itself to stop the trouble Such cases arise. (1) in certain trades—here the practitioner is more likely to have to give evidence than to treat; (2) in drug habits, morphine, veronal, alcohol—here the treatment is special and is fully noted in special and general medical literature; (3) in casual poisonings as from arsenic in wall-papers and from lead in water-supplies; (4) as a result of foul play. In some cases elimination may be helped. Lead, for instance forms with iodides a soluble salt and for this reason iodides are given to get it out of the tissues With sulphates it forms the very insoluble lead sulphate; for this reason magnesium sulphate is given to precipitate the excreted or unabsorbed salts in the intestine and to help to carry them out of the body.

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Special Articles.

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT FOR 1925-26

The report[1] of the Committee of the Privy Council for Medical Research for the year 1925-1926 records a change in its composition, the office of Chief Secretary for Ireland having become obsolete The Committee now consists of the Lord President of the Council, the Secretary of State for Home Affairs, the Secretary of State for Dominion Affairs the Secretary of State for the Colonies, the Minister of Health (England and Wales), and the Secretary (now Secretary of State) for Scotland. The Secretary of State for Home Affairs, while representing the interests of Northern Ireland is representative also of the interests of industrial hygiene in their relation to medical research.

The grant-in-aid of £135,000 provided by Parliament for the expenditure of the Medical Research Council during the financial year has been allocated as follows · For administration, £8500: for the expenses of the National Institute for Medical Research at Hampstead and of the farm laboratories at Mill Hill, £45,500; for research grants to scientific workers and for the expenses of their researches at other centres, £81,000. The number of members of the Medical Research Council has been increased from ten to eleven and now includes: the Earl of Balfour (chairman) Lord Mildmay of Flete (treasurer) Mr. William Graham M P, Sir Frederick W Andrewes, Prof. E P. Cathcart, Prof G. Dreyer, Sir Archibald E Garrod, Sir Frederick G Hopkins, Professor C. J Martin, Sir Charles S Sherrington, Sir Cuthbert S Wallace and Sir Walter M. Fletcher (Secretary)

In the introduction to this year's report the Council give some admirable examples of the interplay between what sometimes seems to be only the academic work of the scientific laboratory on the one hand and, on the other, the work of applied or practical medical science These examples serve to illustrate the kind of work being done under their auspices, which is described in more detail later in the report

Histamine

The isolation of histamine from ergot and then from the wall of the human intestine by Dr. H. H Dale, Prof. G. Barger and Dr. P P Laidlaw some years ago has proved to be of great physiological significance Its bearing on our knowledge of the mechanism of shock and of the capillary circulation in general is familiar to our readers as are also the researches by Sir Thomas Lewis and his colleagues, which show that the reaction of the skin to certain insults produces effects of local flushing and swelling indistinguishable from those produced by histamine[2] At many other points the production of histamine in the body seems to take on a wide medical significance Its identification in the liver has a bearing upon some recent claims made in Canada for an extract of liver which was believed to have specific properties of lowering the blood pressure in man

Examination of such an extract by Dr. C H. Best and Dr Dale showed the presence in it of two vasodilator principles, which were subsequently identified with choline and histamine respectively Physiological experiments with an extract prepared from lung under similar *conditions* showed that it was peculiarly rich in substances lowering the blood-pressure having an action mostly of the histamine type. Mr W V Thorpe was able to isolate from a purified lung extract about three-quarters of the active principle present according to the physiological estimate and to identify it chemically as histamine obtaining from 10 kg.

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[1] Report of the Medical Research Council for the year 1925-26 London H M. Stationery Office Pp 161. 3s 6d

[2] See The Lancet, Jan 1st, 1927, p 39

of fresh lung a yield of nearly 300 mg of this intensely active base Extracts of other tissues are now being studied by similar methods It is already clear that a widely spread vasodilator substance, long known to be yielded by almost all tissues of the body, will probably prove to be histamine

Clinical investigations are being made by Miss I Harmer, working under Sir Thomas Lewis, on the action of liver extracts and of artificial mixtures of choline and histamine on patients with high blood pressures.

Cholesterol and Vitamins

The most familiar of the sterols is cholesterol, which occurs in gall-stones, in the natural grease of the skin, in the sheaths of nerve-fibres, and is widely distributed elsewhere in the animal body. What was known as the result of long and laborious investigations, of its origin and fate in the body, suggested that it was a relatively inert substance Meanwhile chemical studies of great ingenuity and elegance had revealed the complex architecture of the cholesterol molecule, and its relation to that of other sterols occurring in animals and plants The recent discovery that the antirachitic vitamin D is actually formed when cholesterol and certain other sterols are exposed to rays of ultra-violet light considered in relation to the structure of the sterol group will, it is hoped, lead to an understanding of the relation between the effects of natural foods and of substances like cod-liver oil, and those of exposure to clear sunlight in clean air, in producing normal and healthy development of the body The Council acknowledge the help given to Mr O Rosenheim and Mr Webster in their work by Prof Windaus of Gottingen and Prof I M Heilbron of Liverpool

Insulin

The Council draw attention to their prophecy in their annual report for 1922-23 that "insulin will prove to have an importance for physiology far beyond that of its use in the treatment of diabetes" This prophecy has received ample fulfilment

Dr Best and Dr J Hoet of Louvain have been working in collaboration with Dr Dale and his colleagues at Hampstead, and joint investigations have been undertaken into the fate of the glucose which disappears from the circulation under the action of insulin The conclusion provisionally arrived at is that insulin not only promotes the storage of circulating glucose as glycogen, but has a restraining influence on the new formation of carbo-hydrate in the liver On this conception, therefore, the action of insulin in excessive doses is merely an exaggeration of that which it exerts in physiological and therapeutic amounts As an incidental outcome of this work on insulin, phenomena have been observed by Dr Hoet and Mr H P Marks which have an important bearing on the nature of *rigor mortis*, and by implication, therefore, on the chemical changes which result in muscular contraction Workers with insulin have often observed that an animal dying from an overdose becomes rigid with remarkable rapidity Dr Hoet and Mr Marks found that the same precipitate onset of *rigor mortis* occurred in rabbits which died after daily administration of thyroid substance for some weeks The common factor was the practically complete exhaustion of the muscle-glycogen, and the consequent failure to rebuild the hexosephosphate or "lactacidogen"

They found that such glycogen-free muscles enter into rigor with their reaction still alkaline—an observation already made, indeed, by Claude Bernard in 1879, but apparently overlooked in the recent development of theories of contraction and rigor

The new evidence strongly suggests that the disappearance and reformation of lactacidogen are factors as important, in contraction and relaxation respectively, as are the appearance and removal of lactic acid , and, further, that *rigor mortis* is essentially a contraction rendered irreversible by failure to reform the lactacidogen, either through shortage of the raw material, when glycogen is exhausted, or through death of the synthetic mechanism, as in ordinary *rigor mortis*

Diet and Teeth

Some eight years ago Mrs May Mellanby showed that deficiency of the vitamin now labelled D in diet otherwise complete and abundant, if inflicted during the period of dentition, leads, in animals, to the imperfect development of the jaws and teeth, this deficiency, according to the degree of its severity, causes interference with the formation of the enamel coating of the teeth, ranging from complete absence of enamel through various grades of imperfection, more or less notable, of the fine prismatic architecture of the enamel upon which its great hardness depends The deficiency in diet leads also to corresponding malformation of the dentine of the teeth

When these results were first reported, doubt immediately arose as to whether the results of these animal experiments could be related directly to the observed phenomena in human beings The general experience of dentists led them to believe that dental decay, even if more common in badly formed teeth, is common also in teeth apparently perfect in their enamel It led them further to believe that decay can hardly be related directly to the diet (irrespective of the possible external effects of food retained within the mouth) since decay had seemed to be as common in the teeth of the well-to-do classes, and among individuals obviously well nourished from birth, as in those of the poorer classes or among persons bearing other marks of faulty nutrition Mrs Mellanby proceeded accordingly to make further inquiry She found in the first place that ordinary naked-eye examination of the teeth is not enough to show faults of fine structure Microscopic examination of over a thousand shed or extracted teeth from children of all classes revealed wide spread defects in structure both in enamel and dentine Of the badly-formed teeth 95 per cent showed decay , of the well-formed teeth only 23 per cent showed decay In the defective teeth in which no caries was present good secondary dentine was in general found The teeth of normal structure that showed caries had usually badly-formed secondary dentine The explanation of these exceptional cases is probably provided by the results of animal experiments, which have shown that good secondary dentine is formed in the teeth upon an adequate "calcifying" diet, even though the original enamel had been badly formed as the result of inadequate diet during the time of dentition With Dr Lee Pattison, Mrs Mellanby has already investigated the actual results of varying the amounts of calcifying potencies of the standard diets in a large community of children. Clear indications have already been given that the amount of new caries is greatly diminished by the addition of the vitamin When, on the other hand, the vitamin is diminished and the anti-calcifying substance found in cereals, especially in oatmeal, is increased, caries spreads rapidly The Dental Committee who supervise the programme of work which the Council undertake with large assistance by grants from the Dental Board of the United Kingdom, are now making more extended inquiries in these directions

The paradox that persons apparently completely nourished throughout life may have teeth of which the architecture nevertheless shows signs characteristic of a specific deficiency in diet, has great biological interest It may be solved if we may suppose what only further research can prove—namely, that in a body rapidly growing under the stimulus of full nutrition, the calls upon the available vitamin made by particular parts of it may be so insistent or for some reason so successful that other parts, as for instance, the teeth, fail to gain their due supply, and a relative local deficiency is established

In the light of these recent studies it seems possible that the teeth of a nation may give a sensitive index of the degree to which the constitution of the diet is adapted to the complex needs of each section of the population

Filter Passers and Cancer

Fifteen years ago Dr Peyton Rous showed that filter-passing material obtained from chicken sarcoma could propagate, without the presence in it of any visible cells, another malignant and rapidly fatal tumour of the same kind in a bird of the same breed

It will be remembered that in 1925, Dr W E Gye, working with Mr J E Barnard, found evidence which he believed could only be explained on the hypothesis that the filtered and cell-free material obtainable from the Rous tumour is separable into two factors, either of which alone is innocuous and inactive One agent he believed to be a non-living chemical substance, the so-called "specific factor," which is rapidly destructible at a temperature of 55° C and bears the specific racial qualities of the particular animal from which it is immediately derived The second factor he regards as a corpuscular virus, small enough to pass through very fine filters, too small to be visible by ordinary microscopic means but not too small to be acted upon by gravity in a fluid suspension, and not too small to be photographed if light rays of wave-lengths beyond the visible spectrum be used with appropriate apparatus. The specific chemical factor, inactive alone, can be activated by the addition to it of the virus; the activating virus is not racially specific because a virus derived from a malignant tumour in one kind of animal can be substituted for the virus of another. Thus Dr. Gye has repeatedly produced tumours in the fowl by taking the specific factor—that is, an extract of fowl tumour in which he believes the virus to have been destroyed, and by adding to it extract or "virus," derived from mammalian tumours, including cancerous and other growths removed from human patients by operation.

This hypothesis of the double nature of the effective agency allows at once the reconciliation, as the Council pointed out last year, of the two opposite schools of thought, namely—those who believe in some common causative factor of a parasitic kind as accounting for the points of similarity in the malignant tumours of all kinds of animals and those again who, knowing the impossibility of transmitting a malignant growth directly from one animal to another of different kind are disposed on this negative ground to resist as inconceivable any infective or parasitic theory of cancer.

Workers from the chief centres of cancer research of many countries have visited the National Institute during the past year for personal observation of Dr Gye's methods and results, with those of Mr Barnard. Time will show whether Dr Gye's provisional interpretation of his experimental facts is true in part or in whole but however that may be, it is certain that his work has brought fresh outlook and hope and has given a strong stimulus to new activities in the cancer research laboratories of almost every country.

On questions of fact some laboratories have confirmed, while some have hitherto not confirmed, this or that part of his work. It must be remembered that the technical manipulations involved are difficult and that their due performance must always largely depend upon individual skill. The chief issues raised are relatively simple and come from two sides.

From the beginning it has been doubted by some whether the chloroform with which Dr Gye treated the tumour extract does, in the concentrations used, effectively destroy the virus and leave the specific factor, as he believed, in isolation impotent to cause new tumour formation without the addition to it of fresh virus. In more recent work, already published in part, Dr Gye has found that other antiseptics of diverse chemical nature, like acriflavine or cyanides, can be used instead of chloroform. The chemical destruction of the virus by antiseptics finds closely parallel and confirmatory results in those of physical removal, as when the corpuscular particles of virus are separated mechanically, by very rapid spinning in a centrifuge, from the specific factor which remains in solution. Dr Gye is actively continuing this work and has found no reason at all to modify his position. His results in detail are being published as early as possible.

The second line of attack disputes the validity of Dr. Gye's claim that he can cultivate the virus outside the body by successive transplantations from tube to tube of culture medium. For it has been alleged in some laboratories that the tumour juice, which has been treated by antiseptics for the destruction of the virus and which is believed therefore to contain the "specific factor" alone, can be reactivated not only by "virus" from another tumour, as Dr Gye finds, but equally well by non-cancerous material, for instance by normal embryonic tissue. If that be true, then Dr Gye's hypothesis, though not upset, becomes widened almost to absurdity, because the virus becomes an agent of almost ubiquitous origin instead of one associated always with malignant growth. Moreover, since all Dr Gye's cultures contained embryonic tissue, his evidence for artificial cultivation of the virus outside the body is destroyed. Here is a conflict of testimony, of which only time can settle the outcome. The position will be clearer when the results of further experiments have been published for proper consideration.

It must be recalled, finally, that the problem which here challenges the scientific world is the proved and admitted capacity of the liquid juice of a tumour, free from any cells and containing no particles visible by ordinary light to carry within it two biological properties at the same time; one that of producing a new tumour, the second that of holding within itself some intimate pattern of substance which forbids propagation of the tumour except in an animal of the same species and of close blood-relationship within the species. In what part or parts of the fluid do these two properties reside? This challenge has been standing open now for 15 years. Dr Gye, in taking it up, has produced the first coherent explanation based upon experiment. Whatever be the final outcome of his work it has at least drawn many other workers already to face this outstanding problem which has been left disregarded too long.

(To be concluded.)

MEDICINE AND THE LAW.

Seditious Conspiracies

A MESSAGE from a Monmouthshire correspondent in the *Times* of Feb 14th mentions an alleged Communist plan for raising in South Wales a Workers' Defence Force with a medical branch and with personnel trained in the rendering of first aid. If there is at any time to be civil war, it is an admirable proposal that preliminary arrangements should be concerted for binding up the broken heads; but it is doubtful whether the non-combatant nature of a doctor's duties would protect him from the clutches of the criminal law if he joined a movement of this nature. Apart from the solemn capital offence of high treason, and apart from Acts of Parliament which deal with unlawful societies and seditious meetings, there is an Unlawful Drilling Act of 1819 which definitely prohibits "as dangerous to the peace and security of His Majesty's liege subjects and of his government" any meeting or assembly of persons for the purpose of training or drilling themselves or for the purpose of practising any military exercise movements, or evolutions without any lawful authority from His Majesty, a secretary of state, or an officer deputed to act in that connexion. Persons attending such meetings or taking part in such training are liable to a sentence of seven years' penal servitude. When, as during the stoppage of work in the coalfields last year, the Emergency Powers Act machinery has been brought into operation, the usual code of Emergency Regulations provides a summary method of dealing with the same range of offences, trial being thus expedited and simplified and punishment reduced. It is probable that, if it ever were necessary to institute large-scale criminal proceedings against persons concerned in anti-governmental movements—movements, that is to say, not directed against the particular government of the day, but against the general established order of government in the country—those persons would be indicted on a charge of seditious conspiracy. Such a charge flings its net very wide, and evidence of all kinds of acts and incidents becomes admissible as evidence of the common unlawful purpose. A seditious intention is defined in the legal text-books as possibly including five varieties—first the intention to bring into hatred or contempt, or to excite disaffection against, the king or the government and constitution of the country or against Parliament or the administration of justice; secondly the intention to excite His Majesty's subjects to attempt, otherwise than by unlawful means, the alteration of any matter in church or State by law established; thirdly, to incite anyone to commit any crime in disturbance of the peace; fourthly, to raise discontent or disaffection among His Majesty's subjects; and fifthly, to promote feelings of ill-will and hostility between different classes of such subjects. Those five alternatives are declared seditious on the high authority of Lord Halsbury's "Laws of England"; the language may sometimes sound old-fashioned, but the State would not be powerless in the face of serious threats Medical personnel might not be regarded as being trained or exercised in military movements and evolutions, but anyone who accepted membership of a seditious body and conformed to its orders, organisation, and operations would undoubtedly be taking part in a seditious conspiracy, even though the purity of humanitarian motives might offer some prospect of escaping the heaviest sentence. This discussion, it may be confidently hoped, is of academic interest only It is unnecessary to add that, the stronger and more elaborately organised an unconstitutional movement becomes, the greater severity is to be expected in the administration of the law

Professional Discipline An Imperfect Parallel

Those who are interested in statutory provisions for enforcing professional discipline will have noted the appearance of the new Solicitors Bill The Law Society has found that the statutory machinery for striking a solicitor off the Rolls or for suspending him temporarily from practice can be stultified because the person concerned can still obtain employment in a nominally subordinate position The Bill, therefore, proposes that no solicitor shall, without the written permission of the Society, employ or remunerate any person who, to the knowledge of the solicitor, has been struck off the Rolls or is suspended from practice Any solicitor dissatisfied by a decision of the Society in this connexion is to have a right of appeal to the Master of the Rolls The second clause of the Bill imposes a penalty upon anyone who has been struck off the Rolls or suspended from practice and seeks or accepts employment by a solicitor without disclosing his disability

These proposals show once more how imperfect is the superficial parallel between the disciplinary systems of the medical and the legal professions The Law Society is equipped with far greater powers over solicitors than the General Medical Council possesses over doctors Up to a point there is similarity Each profession is allowed to define its own standards of conduct and to apply them judicially Thereafter there is a marked divergence The solicitor who violates the accepted standards can at present be substantially—and, if the new Bill passes, may in future be absolutely—debarred from practising his profession in any form But the doctor who in similar circumstances is punished by having his name removed from the Medical Register is still left at liberty to practise medicine with but few restrictions Indeed, in one sense he has a positive advantage, for he can thenceforward compete without the restraint of professional standards against registered medical practitioners who are more scrupulous in maintaining recognised traditions

IRELAND.

(From our own Correspondent.)

Charter Day Dinner of the Royal College of Surgeons

The Charter Day Dinner of the Royal College of Surgeons in Ireland was held on Feb 19th in the College Hall, the President, Mr Andrew Fullerton, in the chair. Special interest was taken in the dinner this year, as it is the first occasion for over 60 years that the College has chosen as president a surgeon who resides outside Dublin Mr Fullerton is professor of surgery in Queen's University, Belfast, and one of the surgeons of the Royal Victoria Hospital, Belfast On only one previous occasion has the College had a president from the provinces—namely, in 1862, when Thomas Lewis Mackesy, of Waterford, was elected There was a very large attendance of Dublin Fellows and their friends to welcome Mr Fullerton, and no less than 30 of his colleagues from Belfast attended as guests In fact, the entire staffs of the Royal Victoria Hospital and of the Mater Infirmorum travelled to Dublin for the occasion Mr T. Healey, the Governor-General of the Irish Free State, was the principal guest Acknowledging the toast of his health, he said that the College had received its Charter in 1784, and now after a lapse of nearly 150 years, had gone to Belfast for its president The English College of Surgeons, which received its Charter in 1800, had last year gone to Leeds for its president, and there had selected an Irishman, who was also a Fellow of the Irish College In Irish medicine and surgery there was, he believed, no north and south; latitude and longitude were abolished He hoped that in the President's year of office this benevolent union between North and South would tend to dissipate prejudice in the interest of their native land Mr T E Gordon, Vice-President of the College, proposed the toast of Prosperity to Ireland No doubt, he said, the medical profession had great difficulties at the present time, but it had the advantage, which many had not, of a united Ireland For their boundary as a scientific body they must look to the limit of civilisation Among other speakers were Mr R W Livingstone, Vice-Chancellor of the Queen's University, Dr D Coffey, President of University College, Dublin, Sir Thomas Myles, Sir Arthur Chance M. Blanche, Consul-General of France, and Dr Bethel Solomons, Vice-President of the Royal College of Physicians of Ireland

PARIS

(From our own Correspondents)

Substitute Flour in Bread

In November last the Académie de Médecine went into the question of using substitute ingredients in bread-making. A special commission was appointed and has now reported that the use of such flours as those prepared from rice, maize, and manioc has drawbacks which are not counterbalanced by any economy; it should therefore be given up Naturally this report has evoked protest from colonial importers, in spite of which the Académie has adopted the following resolutions The addition of regular substitutes is without danger to the public health, but substitute flours alter the quality of bread if they are used in a proportion of more than 5 per cent In order to maintain a high standard of quality and economical production it is desirable that the supply of flour for bread-making should be regulated over a period of, say, five years During this time the extraction of flour from wheat should be fixed at as high a level as possible, and it may be necessary to arrange a scientific investigation of the methods adopted by the millers At least 10 per cent of rye-flour should everywhere be compulsorily added to wheat-flour Where local conditions make it desirable sarrazin-flour (buckwheat) may be substituted for rye, but all the unsuitable flours, such as rice, manioc, and maize, should not be employed

Protection of Infants against Tuberculosis

During the last three years Weill-Halle and Turpin, of Paris, have been attempting premunisation of infants against tuberculosis by injections of B C G vaccine This vaccine consists of an attenuated culture of tubercle bacilli, and, as recommended by Calmette and Guérin, is usually given by mouth a few days after birth In the present series of cases the children all belonged to infected families and had not had the benefit of this early protection, and the following method was accordingly adopted After it had been ascertained that the child was not infected a single subcutaneous injection was given, varying in quantity from a quarter to one milligramme The effects of this injection were very mild A local reaction occurred about the third week, ending in a small cold abscess which later drained itself and healed spontaneously The tuberculin skin reaction became positive in two or three months It may be concluded from these first attempts that this new method is harmless; it remains to be seen what is the minimal efficient dose and what are the relative advantages of ingestion and injection.

The Sick should be Fed.

An original communication has recently been made to the Société de Thérapeutique by G. Leven, of Paris, who considers that the first duty of a doctor should be the nourishment of his patient. In dealing with disease, whether acute or chronic, the rôle of food is infinitely more important than that of drugs. Often starvation causes symptoms which are wrongly imputed to the malady; it makes illness worse and complicates or prolongs the time of convalescence. In some cases—for example, gastric ulcer or the vomiting of acidosis—it is customary to stop all feeding by the mouth. Leven, however, considers that it should be continued, for it has from every point of view a beneficent influence, and is much more satisfactory than nourishment by the rectum, which has many, and often serious, inconveniences.

Habit in Disease.

Charles Fiessinger, of Paris, points out that habit is important in the manifestations of disease, just as it is important in mental processes. The picture of the illness remains after its real cause has gone away. Sometimes a permanent slow pulse, which has had its origin in an acute attack, or again, an albuminuria following infectious nephritis, will clear up as if by magic when confidence is restored to the patient. In all chronic disease custom plays its part, and after the turn of the illness it is difficult to get rid of it. An emotional shock, such as can be produced by a doctor's emphatic pronouncements, may sometimes work the miracle, and sudden improvement may occur in face of apparently formidable disease.

Regulation of the Production and Sale of Vaccines.

Nowadays there are many and various kinds of microbic vaccines, and it is astonishing that so many remedies should be put on sale without restriction either as to distribution or mode of employment. The only real guarantee which exists in France is that the laboratories which prepare them must have secured a special licence. In a recent paper read before the Académie de Médecine G. Petit pleads for rigorous control, laying down rules and regulations which should govern the bacteriological and physiological analyses of vaccines, to make certain that they have been properly prepared, and that they are efficient and harmless.

Increase of Medical Students.

It might be supposed that as medical study takes longer and costs more than formerly, the number of students would be diminishing. But it is not. In 1922 the preliminary scientific certificate which every student must take before starting medicine was granted to 1349 students throughout France; in 1925 the number had risen to 1900, and last year to 2211.

Dr. Léonce-Pierre Manouvrier, who died recently, was director of the Laboratory of Anthropology and of the Physiological Department of the Collége de France. He was a member of many learned societies abroad and wrote about 150 original memoirs on anthropology, zoology, physiology, psychology, and criminology. He was born on June 28th, 1850, at Guéret (Creuse), and qualified as a doctor of medicine.

The Chamber of Deputies has passed a Bill extending to physicians, surgeons, and hospital personnel the right of compensation for accidents sustained whilst on duty.

Courses in dermatology and venereology have been arranged by Prof. M. Jeanselme at the Hôpital St. Louis, Paris, in April, May, June, and July. Particulars may be had from Dr. Burnier at the hospital.

From March 28th to April 8th there will be a vacation course at the Hôtel Dieu under the direction of Prof. M. Villaret. The subject is Modern Conceptions of Clinical Practice and the Diagnostic Use of Current Laboratory Methods.

Correspondence.

"Audi alteram partem."

POST-GRADUATE TOUR FOR SURGEONS

To the Editor of THE LANCET.

SIR,—May I through the medium of your columns call the attention of the surgical profession to the proposed post-graduate tour in the United States of America and in Canada which is now being organised by the Surgical Section of the Royal Society of Medicine. It is proposed that the complete tour should last six weeks and the itinerary has already been set forth in your issue of Feb. 12th (p. 368). It has, however, been found necessary to alter the date of departure which has now been fixed for August 20th. This alteration has been made partly to avoid interfering with the end of the meeting of the British Medical Association and also for the reason that more American surgeons of eminence will, by that time, have returned from their holidays.

By arrangement with the Cunard Company the cost of the whole tour, including ocean passage, rail and other transport and hotel expenses, will be approximately £140. Travelling facilities on the same terms will be offered to wives of those taking part in the tour. Membership of the tour is open to all members of the Section of Surgery and to all Fellows of the Royal Society of Medicine on nomination by the Organising Committee. Non-fellows who wish to join must be nominated by two members of the section and be approved by the Committee.

The tour has been arranged to give surgeons in this country an opportunity of seeing the work of some of the important surgical clinics in the United States and Canada at a reasonable cost and with the expenditure of the minimum of time and personal trouble. Should the numbers exceed 100 a special train for the party will be provided and the Cunard Company will send a travelling courier. It is important that the names of those wishing to join should be in the hands of Mr. C. Max Page, the honorary secretary, 134, Harley-street, London, W. 1, at an early date as final reservations will have to be made shortly on account of the large number of Americans returning home at the time of the proposed tour. The organisers hope that this invitation will meet with an adequate response and that the members of the tour will comprise a representative body of British surgeons.

I am, Sir, yours faithfully,

V. WARREN LOW,
President of the Section of Surgery of the
Royal Society of Medicine.

Harley-street, W., Feb. 19th, 1927.

ACUTE POLIOMYELITIS

To the Editor of THE LANCET.

SIR,—The admirable papers of Dr. James Collier and Dr. F. M. R. Walshe in THE LANCET of Feb. 12th will undoubtedly be of great assistance in the clinical diagnosis of acute poliomyelitis.

The authors apparently are wedded to the idea that the disease is invariably transmitted from human being to human being, generally indirectly through a human carrier. I was glad to note that in the discussion (p. 340) on Dr. Walshe's paper, Dr. M. H. Raven (himself a patient who had recovered from the disease) stated that from his observations and experience he could not consent to the idea that dirt and flies could be left out of the question of the agencies of spread.

In the year 1911, several cases of poliomyelitis occurred in Norfolk, for the most part isolated cases, except that in the rural district of Downham three small groups of cases occurred. In the autumn of 1926 some eight cases have occurred in Norfolk widely separated from one another. There can be no question that there is undoubted evidence of spread in many instances in institutions by human agency, but in many rural areas isolated cases of poliomyelitis occur, and one has to search for other agencies of infection · even in the multiple instances in institutions there is no evidence that enquiry was made into a possible insect carrier of infection In a presidential address to the Eastern Counties branch of the Society of Medical Officers of Health, published in *Public Health* (December, 1914), I reviewed the possible sources of origin Generally speaking, poliomyelitis is a *rural* disease, single cases occurring in widely separated and sparsely populated districts, without any evidence or indeed possibility of contact even with a human carrier contact of a known case The very fact that, except in epidemic form, the disease is distinctly a *rural* disease makes it necessary to look for other than human agencies In this connection one should look for evidence of strange illness among the lower animals, and to a biting insect which might carry infection from a diseased animal to a human being. It is possible even for a biting insect to carry the germ from a saprophytic source direct to a human being

The first question to be answered is Why under normal conditions is sporadic poliomyelitis more a rural than an urban disease? In every case of poliomyelitis which I have investigated I have made special observations as to the evidence of any biting insect and have in every instance found evidence of existence in the neighbourhood of the biting stable fly — *Stomoxys calcitrans* I find that Rosenau, of New York, has this fly under suspicion The second question to be answered is · Why does the disease generally attack young children? The third question is Why is the disease generally seasonal, being limited, as a rule, to late autumn and summer?

An answer to the second question—bearing in mind the generally infrequent and sporadic nature of the disease—is that during the warmer months children are generally clad in shorts, leaving their bare legs and arms more assailable to the bites of insects An answer to the third question is that all insects breed most numerously in the warmer months The stomoxys breeds in warm stables and cowsheds—breeds longer than the domestic housefly and, owing to its warmer environment, resists mild frost better Moreover, being a biting fly receiving its nourishment from the blood of living animals, it spends a large part of its existence in contact with warm-blooded animals, which is another reason why it may still be found in numbers in the late autumn when the *Musca domestica* has practically disappeared —the latter fly being very susceptible to cold In some of the cases I have investigated the mother has known that the child has been bitten by flies In some of the cases I have actually seen the marks of the bites In one case a cow had died of some mysterious disease in a cow-shed about 200 yards away, and there were many specimens of stomoxys in the home

One interesting batch of cases was recorded in THE LANCET (1913, ii, 1380) by Dr George Jubb as having occurred on the route of travel of a baker's cart Dr. Jubb thought children might have been bitten by vermin from the donkey which drew the cart Surely a more probable biting insect was the horse-fly or stable-fly which probably in numbers teased the unfortunate steaming animal in the course of his round and regaled themselves with an occasional meal from the legs and arms of the children in shorts in the various villages at which he stopped

Mr R C Elmslie, as an orthopædic surgeon, naturally has to deal with a large number of cases of poliomyelitis He states that a large number of these cases are not parts of epidemics but isolated cases Would not such cases be likely to be the occasional victims of a biting infected fly? Dr Raven reminded members of the Medical Society that macerated flies had been proved to be capable of infecting monkeys A little more detail of these experiments is required Anderson and Frost fairly definitely proved by experiments on monkeys that infection of poliomyelitis could be conveyed by stomoxys Mr P B Roth described in THE LANCET (1913, ii, 1378) an interesting small epidemic of six cases in five small villages, the only common factor to all being the proximity of stables and cattle yards A disease resembling poliomyelitis has been recorded as occurring among horses A horse or donkey trailing a tradesman's cart accompanied by pestering biting flies might easily carry an infected stomoxys from village to village and thus explain sporadic cases within a limited area, for many a human being including myself can personally testify to the vicious biting propensities of this fly

I am, Sir, yours faithfully,

J T. C NASH, M D, D P H,

County Medical Officer for Norfolk

The Shirehouse, Norwich, Feb 16th, 1927

OPHTHALMIC BENEFIT

To the Editor of THE LANCET

SIR,—You may remember that some months ago there was a considerable extension of what is known as "ophthalmic benefit" under the National Health Insurance Acts Previous to this the various "Approved Societies" assisting in the administration of the Act granted what was known as "optical benefit", this, in practice, meant that they were prepared to pay up to a certain amount for spectacles made by opticians, the question whether the glasses were prescribed by the optician concerned or by an ophthalmic surgeon being of no interest then to the Approved Societies

Recently the Ministry of Health has sanctioned the Approved Societies giving what is now termed "ophthalmic benefit," where the societies have funds available for the purpose Under this scheme the societies pay the ophthalmic surgeon a fee of one guinea for an examination of the insured person's eyes, the surgeon prescribing glasses if required, the prescription being taken to the optician and made up with the same proviso for part payment of the optician's charges as before I am informed that about a third of the Approved Societies have adopted this scheme of ophthalmic benefit, the remaining two-thirds still giving only optician's benefit

The modus operandi for the insured person to get this benefit is first to apply to his society for an ophthalmic benefit form, this he takes to his panel doctor who signs it, certifying either (1) that the services of an ophthalmic surgeon are essential, or (2) that he should go to an optician The patient sends the completed form to his society, who then issues a letter telling him to see an ophthalmic surgeon, and either gives him the name of a particular surgeon to be seen or gives him several of surgeons living in his neighbourhood The onus is thus on the panel doctor of deciding whether the services of an ophthalmic surgeon are necessary, or to put it bluntly, he is expected to see that cases of cataract, glaucoma, or new growth are not sent to opticians for treatment

I gather that the societies that do *not* give "ophthalmic benefit" but only pay for spectacles, take the view that in the majority of cases the services of an ophthalmic surgeon are unnecessary and that an optician can do all that is needful With this view I am inclined to agree The vast majority of eye patients require glasses only. When they consult opticians I would go so far as to say that the opticians in 80 per cent of cases prescribe correct glasses and give their patients satisfaction Probably 15 per cent of patients get glasses sufficiently good for the purpose, but which might be improved by an ophthalmic surgeon The balance of 5 per cent have some ocular disease, and my experience is that opticians generally refer these cases to hospitals In spite of a letter in your columns a few weeks back I think that the *real damage* that can be done to the eyes by unrestricted prescribing by opticians is extremely slight, practically the only risk being that a case of rise of tension in the eye from whatever cause might go undetected. Now, after all, glaucoma is not a very common disease and would probably be detected by the patient's panel doctor before he went to the optician.

These views may sound heretical to some, but I think that the majority of ophthalmic surgeons will agree with me as to their correctness For doing this ophthalmic work the Ministry of Health devoluted to the British Medical Association the privilege of compiling a list of ophthalmic surgeons who would be willing to examine National Health Insurance patients for a fee of one guinea Practically all the ophthalmic surgeons in England are on the list They are about 600 in number, of which about 100 are in the area of London and its surrounding suburbs

Why the Ministry of Health handed the formation of the list (now known as the " Ophthalmic Panel ") to the British Medical Association I do not know However much one approves of the Association—and I do thoroughly approve of its activities—one cannot help feeling that it was undesirable for the Government to hand over this function of forming an ophthalmic panel to what, after all, is a private organisation banded together for the mutual benefit of its members Human nature being what it is, non-members of the British Medical Association will always feel that members of that body will " have a pull " in getting on to the ophthalmic panel It would have been much better for the Ministry to have retained the formation of the ophthalmic panel in its own hands

Concerning the personnel of the ophthalmic panel, there are men on it who, some may say, have not sufficient experience and knowledge of eye work to justify their inclusion There is a real danger, especially at first, that if inexperienced men get on the ophthalmic panel it will bring it into contempt and disrepute My feeling is that no man should be on the ophthalmic panel unless he is on the staff of an eye hospital in a senior or junior capacity, or on the eye department of a general hospital or in charge of a school clinic There are men on the panel who have held junior eye appointments years ago, but now hold no post bringing them into touch with eye work These men are not good enough for the responsibility and they have no opportunity of keeping abreast with the times

The ophthalmic panel consists of a list of names and addresses of doctors and nothing more It is not on sale to the public, but the British Medical Association has supplied copies to all the Friendly Societies From this document the *officials* of the societies have no means of knowing anything about the position and status of the medical men *on it*, unless they refer to that excellent non-official publication the Medical Directory In fact, the list is about as much use *to the* ordinary man as that list of 4000 members that the Stock Exchange so kindly supplies one with if one wants the name and address of a good stockbroker I suggest that when the next list is published the ophthalmic appointments actually held at the present *time* by its members should be included something after the style of the Medical Directory A point to be considered is whether the list of names of members of the ophthalmic panel should be *available to the* public in the post offices as is the case of the ordinary panel Some of the leaders of our profession might consider it savour of undue advertising, others might think it excellent health propaganda.

It is a question in my own mind whether ophthalmic benefit would not be much better administered by some such scheme such as the following —

The patient interviews his panel doctor and requests a certificate to go to an optician This interview with his doctor would exclude cases of gross eye disease being untreated and should exclude cases of chronic glaucoma being missed The optician when he sends his bill to the *society* should give a certificate that the patient with the new glasses gets normal vision (6/6 Snellen with each eye, and Jaeger No 1 for reading, or whatever standard is agreed on) If the case does not get normal vision, the patient should be referred to an ophthalmic surgeon, with the proviso that any glasses prescribed should be made by the original optician

This scheme should satisfy the societies who now feel that many cases are sent unnecessarily to ophthalmic surgeons It should satisfy the opticians who know that they are inclined to lose cases if an interview with an ophthalmic surgeon is not properly safeguarded as above Lastly, and most important of all, the patient would feel that his eyesight was being properly looked after without his time being wasted with unnecessary interviews with ophthalmic surgeons

The point that it is wished to emphasise is that the man in general practice may not know much about the prescribing of spectacles (and the optician from long experience does this pretty well) But that does not mean to say that he (the practitioner) knows nothing about diseases of the eye One feels that he is not given enough credit for the amount of ophthalmic knowledge that he does possess

I am, Sir, yours faithfully,
ADRIAN CADDY, M D , F R C S

Upper Wimpole street, W

*** Mr Caddy's frank letter brings to our mind certain difficulties in connexion with any official recognition of the prescribing optician, and in other directions will invite different opinions from *those* which he has expressed The chief danger in the ophthalmic panel, that men not competent for the work may undertake it, is a fact, but there is a sub-*committee* in existence to decide whether or not a name is to be inserted on the panel, and this body is fully alive to the position —ED L

POST-OPERATIVE FACIAL PARALYSIS

To the Editor of THE LANCET

SIR,—On p 392 of to-day's issue I am reported as saying that the possibility of facial paralysis makes me hesitate before performing a labyrinthectomy. Labyrinthectomy is a serious operation; the risks to be considered are those involving the patient's life, and purely cosmetic considerations have no place among the indications for the operation I should never allow such a trivial complication to influence my decision that the labyrinth should be removed What I actually said was that the cases in which I had had to do a labyrinthectomy (as distinct from simply the radical mastoid operation) had provided my opportunities for observing the course of post-operative facial paralysis

I am, Sir, yours faithfully,
E WATSON-WILLIAMS

Clifton, Bristol, Feb 19th, 1927

THE BLOOD-GROUPS OF IDENTICAL TWINS

To the Editor of THE LANCET.

SIR —Dr G P Crowden's interesting analysis of the physical characters of a pair of identical twins in Guy's Hospital Reports raises another point of practical importance in addition to the question of their finger-prints already discussed *in* your columns I had always supposed on theoretical grounds that a pair of identical twins were likely *to* belong to the same blood-group, and that it should be possible always to use *one* of the pair with perfect safety as a blood donor for the other Dr Crowden's twins both belonged to Group IV (Moss) and so seemed to conform to the theoretical requirements I have recently however had the opportunity of putting this point to the test in practice with the opposite result Being called upon to treat by transfusion one of a pair of twins who was suffering from septicæmia, I naturally turned to his brother for the necessary blood I applied the usual test and found that the patient and donor belonged to Groups II and IV respectively I was thus able to use the healthy twin as donor, but a demonstration had been afforded that the blood even of identical twins cannot be regarded as interchangeable. The twins in question were undoubtedly to be regarded as "identical" in the usual acceptation of the term They resembled one another so closely that for many years they had been employed on the stage as an essential ingredient of certain well-known "mysteries"

I am, Sir, yours faithfully,

London, Feb 20th, 1927. GEOFFREY KEYNES

"SONNE" DYSENTERY IN GREAT BRITAIN.

To the Editor of THE LANCET

SIR,—The last two issues of THE LANCET have contained references to the occurrence of cases of dysentery in Great Britain. That of Feb 12th reports a note by Dr Robert Richards on "Some Cases of Dysentery in Aberdeen," including an interesting case that was operated upon for intussusception on account of a history of a tumour having been felt, and which turned out to be a case of dysentery In his paper Dr Richards states that the latest figures for Britain, for the supposed causal relationship between the dysentery bacillus of Flexner and infantile diarrhœa are my own, and that "I had found dysentery bacilli in 13 cases out of 150 treated in the Hospital for Sick Children, Great Ormond-street"

In THE LANCET of Feb 19th Dr F H A Clayton reports a case of Sonne dysentery in England, and he adds that the Sonne bacillus had not been met with in England until Dr Channon in 1925 obtained it from a man who had had dysentery in Egypt previously I should like to be permitted to make a few observations upon these two interesting papers, because I believe that dysentery is much more prevalent amongst the general population than is generally recognised

At the January meeting of the Pathological Society of Great Britain I read a paper on some observations I had made on the Sonne dysentery bacillus and the *B coli anaerogenes* As a result of investigations I have been carrying out over several years, I have come to the conclusion the organisms I isolated in 1921 from a considerable number of cases of epidemic diarrhœa and other forms of diarrhœa which occurred during that year, which in former publications I have called *B coli anaerogenes*, are really the same organisms as Sonne isolated from some of his cases of dysentery in Denmark Moreover, the organisms described by Dr J Bamforth in London, Dr. R Cruickshank in Glasgow, and others, as occurring in cases of ileocolitis and similar conditions are also the Sonne bacillus

With regard to my figures quoted by Dr Richards —namely, "13 cases in which dysentery bacillus was isolated out of 150 cases studied," may I point out that of those 150 cases only 107 were examined bacteriologically? To this number, however, must be added the 25 cases in which I isolated the *B coli anaerogenes*, and which must now be regarded as the Sonne type of dysentery, giving a total of 38 cases out of 107 (35 4 per cent) examined bacteriologically in which dysentery bacilli of one or other type were isolated

There are several other points I could refer to in connexion with the prevalence of dysentery in this country, but as I intend to write a paper upon this subject shortly I shall be content to leave the matter here for the present

I am, Sir, yours faithfully,

DAVID NABARRO

Harley-street, W, Feb 22nd, 1927.

THE CASE OF COLONEL KYNASTON

To the Editor of THE LANCET

SIR,—Your report of the withdrawal by the Public Prosecutor of the summons charging me with having "illegally, wilfully, and falsely used the descriptions M R C S Eng, and L R C P Lond" gives the impression that it was due to the quashing of my conviction under the Drug Act

This gives a totally false impression The summons was withdrawn after I had pointed out to the Public Prosecutor that the Royal Colleges had no statutory power to cancel their diplomas and that consequently their by-laws were of no legal effect

I am, Sir, yours faithfully,

JOHN KYNASTON, Lt-Col., M R C S Eng,
L R C P, Lond., late R A M C

Chepstow Villas, W, Feb 15th, 1927.

Obituary.

SIR JOHN UTTING, M R C S. ENG, L R C P EDIN.

SIR John Utting, who died last week, was a prominent figure in the corporate life of Liverpool At the age of 75 he was still active not only in the interest of the city's health, but also, and even more conspicuously, in the management of the city's finances Born in Norfolk, Dr. Utting qualified in London at the age of 22, and was at one time editor of *Guy's Hospital Gazette.* For three years he travelled abroad as a ship's surgeon and then, going to Liverpool, settled in a practice which before long became a large one At an early period he interested himself in public health, though it was not till 1899 that he gained a seat on the city council There he speedily made his mark, and for 20 years served as chairman of the port sanitary committee, as a memorial to his work there remains the large isolation hospital at Fazakerley His influence was largely felt in the coordination of the work of the university, the city analyst and the city bacteriologist, in so far as they bore upon public health matters, and the combined Public Health Institute at Liverpool is symbolical of the partnership which was eventually attained Perhaps, however, it was as a financial expert that Sir John Utting made his deepest impression upon the mind of the average citizen In 1919 he was made chairman of the finance committee of the corporation, and his budget speeches became famous for their clarity and the conviction they carried Under his regime corporation stock stood high A ready and forceful speaker, he was a master of the art of handling an audience, and deep convictions seemed to lie behind all that he said "His was a kindly nature," writes a colleague, "and in later years his fine presence and strong though friendly features made a picture hard to forget. Undoubtedly a great intellect has been lost and one of those sterling characters that are so ill to replace"

Sir John Utting leaves a widow, two sons and one daughter

JOHN FLETCHER PORTER, C B E, M B LOND
J P

ON Feb 17th Dr J F Porter died at Hackney at the age of 54 The son of the Rev J F Porter, he was born in Canada and educated at York, Leeds, and the London Hospital He qualified as L S A Lond in 1897, and in 1901 was appointed medical officer to the London County Council For many years he carried on a large general practice in the East End but he managed to combine this with a good deal of special work In 1913 he was appointed medical referee to the London Insurance Committee and later served the approved societies in the same capacity In the following year he became a member of the Special Medical Board on Functional Nervous Diseases and Epilepsy, and in 1917 took up work as Deputy Director of Medical Services under the Ministry of Pensions

He made himself an authority on medico-legal questions and especially on the subject of workmen's compensation and functional nervous disease. Outside his medical work Dr. Porter was a well-known Freemason and a magistrate for the County of London, sitting for the Tower Division. He married, in 1901, the second daughter of the Rev. T. H. Richards, and she survives him with two daughters.

GEORGE ARTHUR PHILLIPS, M.R.C.S. ENG., J.P.

Dr. G. A. Phillips, who died on Feb. 18th at his home in Streetly, was born in 1849, and was one of the oldest practising doctors in the Midlands; he was also one of the most active. In the early 'seventies he settled in Walsall, where he soon became a leading man. His unusual charm of manner attracted patients from all classes, whilst his keen professional knowledge caused many of his neighbouring colleagues to seek his aid in a consultant capacity. For many years he was senior surgeon to the Walsall Hospital, and he became president of every medical society in the district. At the time of his death he was the senior magistrate on the Walsall bench, and chairman of the licensing committee. Some years ago Dr. Phillips gave up his own practice, but he continued to act as a locum tenens for one or other of his many friends, and, though well over 70, got about on a bicycle better than many far younger men. "Until quite recently," writes a colleague, "it seemed that he had learned the secret of perpetual youth, for he was a man who never appeared tired. Always about, always on the very top of his work, he set a fine example to his juniors. He was a splendid specimen of the old-fashioned family doctor—the friend and kindly counsellor of his clients."

Dr. Phillips qualified in 1870 from St. Bartholomew's Hospital, and before settling in practice held house appointments both there and at other institutions.

WILLIAM JAMES CAIE, M.B., CH.B. ABERD., J.P.

Dr. W. J. Caie, who died at Edinburgh on Feb. 6th, was a prominent citizen of Bury St. Edmunds and was mayor of the town from 1923 to 1925. The son of the Rev. W. S. Caie, of Enzie, Banffshire, he was born in 1874 and was educated at Fochabers Public School, at the University of Aberdeen and at the Coombe Hospital, Dublin. Before graduating in 1900 he acted as prosector in anatomy at Aberdeen University, and on taking his medical degrees was appointed to the resident staff of the Aberdeen Royal Infirmary. After a short period abroad as medical officer to a Union Castle liner he settled in practice in Bury St. Edmunds. A very busy professional life followed, in the course of which, however, Dr. Caie found time for much work on behalf of the town. He sat on the Council from 1907 until his death, and was an active member of the education committee. As a practitioner he was especially interested in midwifery and gynæcology, and contributed a considerable number of articles to medical journals. He also wrote on other subjects, but his chief recreation was music, of which he was very fond. As a musician, both violinist and singer, he took a share in the social life of the town, and he was chairman of the Bury Operatic Society. A Freemason and a keen gardener, Dr. Caie was a man who had many interests in common with his fellow-citizens, and he threw himself into all his undertakings with energy and enthusiasm. During the late war Dr. Caie served with the 1st East Anglian Field Ambulance from 1914 to 1916, and held rank as major, having for some years been a Territorial officer. He married in 1906, the eldest daughter of Dr. C. S. Kilner, his partner in practice. His widow survives him and he leaves two sons and two daughters.

REBUILDING OF DONCASTER INFIRMARY.—The Doncaster Collieries Association have promised £25,000 to the building fund of the new Doncaster Infirmary "conditionally on the cessation of the outside agitation which has held up the building scheme."

MIGRAINE.

DISCUSSION AT THE ROYAL SOCIETY OF MEDICINE.

A MEETING of the Section of Medicine was held on Feb. 22nd, Dr. HUGH THURSFIELD, the President, being in the chair.

Dr. C. P. SYMONDS opened a discussion on

MIGRAINE

by pleading for a clearer definition, and remarking on the lack of addition to the knowledge of the subject since Liveing's description in 1873. This lack of progress was partly due, he thought, to faults in the technique of observation and the tendency to include in the term "migraine" any obscure form of recurrent headache. Recent work had detached from the general "migraine-headache" group those due to head injury and sinus disorder, but many varieties still awaited proper classification. The term "migraine" should be reserved for that type characterised by "a liability dating from early life to recurrent attacks of headache, which are at one time or another associated with a characteristic visual or sensory disturbance and are frequently accompanied by nausea or vomiting."

The outstanding ætiological factor of migraine so defined was heredity. Of precipitating causes the first was mental stress and fatigue. Others were subject to much diversity of opinion. Various dietetic factors had been indicted: fat, sugar, protein, acidosis, alkalosis, and blood cholesterin. But the clinical data supporting these theories were meagre or unsatisfactory and the biochemical observations had been few. The occurrence of gastro-intestinal disturbance in the early stages of an attack could not be taken as evidence of gastro-intestinal origin. Eyestrain was rarely an important cause.

Symptoms.

The visual and sensory disturbances were worth studying for the light they threw on diagnosis and pathology. The true fortification spectrum with homonymous defect was rare; simple defect with or without vague flashings was more common and might vary from mere dimness to complete loss. It was usually a vertical homonymous hemianopia, sometimes definitely quadrantic, sometimes bilateral, but usually restricted to a part of the field which could be accurately described by the patient. Transverse hemianopia, transient central scotoma and monocular blindness might occur. All the disturbances were rapid in onset and recovery. The sensory phenomena were distinguished from those of sensory Jacksonian epilepsy by the slow spread (10–30 minutes) and by the fact that tingling of lips and tongue was always bilateral, and that both hands might be involved but rarely both legs. If the right hand was affected there might be some aphasia. Sensory and visual disturbances usually occurred apart from each other and before the onset of headache; they might occur without the pain, or be associated with only a small proportion of the patient's headaches. The preliminary warning sometimes took the form of a peculiar sense of lassitude or even of well-being, the day before the attack. The headache was throbbing, splitting, or bursting, often on the side opposite to the hemianopia but nearly as often bilateral. Vomiting might be the predominant feature, especially in children, in whom many attacks of "cyclical vomiting" seemed to be precursors of migraine. Attacks usually began early in the morning. Dr. Symonds reviewed the symptoms from the point of view of their cortical localisation. This would not, however, stretch to include unilateral scotoma or blindness. He doubted whether cases where these phenomena occurred were true migraine; he had not found a well-documented instance.

He concluded, therefore, that the situation of the disturbance lay in the cerebral cortex, particularly in those parts in which vision and sensation are represented, and that the disturbance was often bilaterally symmetrical

Migraine due to Local Vascular Spasm

The nature of the disturbance was a matter of analogy, and the theory of vascular spasm was the most probable and offered the best explanation of the order of the visual phenomena and the symmetry of the disturbance Raynaud's disease provided a striking analogy, and the two conditions often occurred in the same patient He found it difficult to accept DuBois-Reymond's theory, that the arteries were in a state of painful tetanic contraction comparable with cramp, since the visual disturbance usually preceded the sensory or might occur independently The analogy with " blue " Raynaud's disease was more satisfactory, local asphyxia leading to local œdema A very small swelling in the brain gave rise to severe pain Such a sequence might well lead to local hæmorrhage, and examples of migraine during subarachnoid hæmorrhage had been recorded Retinal vascular spasm had been observed with the ophthalmoscope during attacks of migraine Such paroxysmal constriction was probably a purely local disturbance of function in the vessel walls due to some chemical substance in the circulation or functional defect in the muscle Howard Florey had shown that stimulation of the cervical sympathetic trunk and vasoconstrictor centre would not affect the cortical vessels

Treatment

Since the disease was hereditary it was not possible to speak of " cure " Régime was the most important factor in diminishing the frequency and severity of the attacks Luminal and liquor trinitrini were of undoubted value and were worth trying alternately Often the patient found out how best to treat himself in an attack or how to avert it Aspirin and rest might induce sleep and relief or a good meal with a glass of wine might stop the headache

Two lines of investigation should be pursued (1) the effect of various chemical substances upon the cortical vessels, and (2) the clinical and biochemical features of cases of true migraine should be recorded before, during, and after an attack

The Chairman described a peculiarly severe case of long-standing migraine in a medical colleague The symptoms were ocular disturbance to complete blindness, partial right-sided paralysis, and mental confusion The headache could be relieved by phenacetin This was confirmed as migraine by several other observers He could not see how vascular spasm could be as localised as it must be were it the mechanism of the attack

The Importance of Eyestrain

Dr A Hurst disagreed profoundly with Dr Symond's dictum that eyestrain was an inconsiderable factor On the contrary it was the most important cause of that fatigue of a brain centre which determined the attack, and in some cases was the only cause The reason for its lack of recognition was that only exceptionally careful oculists noticed it, for the slightest astigmatism or lack of muscle balance could be of great importance Glasses, too, needed adjustment from time to time, as accommodation varied with many factors, including health Biochemical examinations of migraine subjects showed a perplexing normality, but X rays revealed that during an attack the stomach ceased entirely to act It was important to recognise how many aberrant types there were He had seen cases that had been operated on for all sorts of supposed conditions

Dr F W Collingwood said that he was subject to migraine and had never found the attacks precipitated by reading, but they were worst after exciting debates, especially political ones

The Family Physician's Point of View

Dr J L Morton stressed the importance of hunting for the exciting cause however " idiopathic " and ‘ causeless " the attack might appear " Spontaneous actions did not occur in Nature " The family physician saw the emergence of migraine during child life, when its alarming acute bilious attacks might even be mistaken for appendicitis Very irregular cases were encountered and the collateral symptoms were worth knowing Eyestrain was, in his opinion, the most important liberating stimulus, and not all first-class oculists were equally successful in finding the small error of muscular balance which might be present Uterine and menstrual disorders, especially displacements, intestinal stasis, appendicitis, goutiness, and sluggish action of the liver might precipitate attacks Headache was by no means the only symptom It might be preceded by itching of the scalp for several days, by abnormal hunger by a feeling of buoyancy or depression, or by a habit of awakening earlier each morning A dose of calomel or salts might avert or mitigate the attack After the headache there were also many easily misunderstood symptoms the correlation between belly and brain was particularly well illustrated by migraine Anorexia, unaccountable sickness and nausea—even cardiospasm—might be central in origin and due to vagal disturbance from a migrainous brain The patient was not always better when the headache passed off with advancing years as these gastro intestinal troubles often remained and glycosuria or arterio-sclerosis might appear

The Relation of Migraine to Asthma and Hydrocephalus

Mr F Coke quoted cases associated with asthma, and remarked that skin tests were of no use except on the day when the patient was going to have a migraine attack

Dr. E A Carmichael supported the theory that migraine might be due to an internal hydrocephalus due to a turgescence of the choroid plexus, blocking one or both of the foramina of Monro Migraine might be described as a slow form of epilepsy Some autopsies had supported this theory

Dr J Kingston Barton said that migraine was undoubtedly mixed up with inherited gout, he regarded it as probably due to some material travelling in the blood until it had been eliminated by the intense polyuria which always ended the attack The effect produced on the patient was that of having temporarily no kidneys The vasomotor constriction probably involved not only the brain but all parts of the body, which would account for the contraction of the stomach recorded by Dr Hurst and for the renal condition The precipitating cause must involve some dietetic question

Dr W R Reynell said that when the problem of epilepsy was solved we should know more about migraine He quoted cases showing the correspondence between the two conditions

Dr J A Ryle said that the common factor of inheritance was the reason why epilepsy migraine asthma, and gout were all incurable There was some diathesis in all of them, some sensitiveness which could be fired off by several triggers and which could only be eradicated by a process of breeding They were not diseases, they were diatheses He recalled Lauder Brunton's observation in his own attacks of migraine, of the constriction and hardening up of his superficial temporal artery

Dr H W Nott described the remarkable effects of the thyroid-manganese treatment in asthma and epilepsy

Dr Agnes Savill quoted the experience of a migrainous family whose members found that the attacks could be arrested by salts or sodium salicylate, they could not, therefore, be entirely due to eyestrain

Dr P Macbride said he was convinced migraine was an allergic disease although no doubt eyestrain was a factor in its production A very large number of people had errors of refraction but very few of them had migraine Cases should be investigated on these lines with an inquiry into the family history and a blood count for leucopenia

Dr. **SYMONDS**. in reply. said that he thought much of the difference of opinion was due to confusion of definition From those who stressed eyestrain he asked for careful detailed records of true cases of migraine under his definition and of their cure by the oculist's methods He thought the attack passed over too quickly to be due to hydrocephalus, and that the absence of convulsive phenomena was the difficulty in the way of regarding migraine as a form of epilepsy

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THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

A MEETING of this Association took place on Feb 16th at the Cheshire County Mental Hospital, Macclesfield. the chair being occupied by Lieut - Colonel J R **LORD**, the President

Visual Imagery

Prof T H **PEAR** read a paper entitled Recent Investigations on Visual Imagery, with Special Reference to Hallucinations The contribution was in two parts, the first dealing with modern experimental normal psychology. the second with modern psychopathology, and Prof Pear said he was not aware of any writings which attempted to bridge the gap between the two The young German investigators had been very busy on this subject since the war and some of the results were now becoming known in this country Some people were able to vividly visualise things they had seen, such as pictures, maps, diagrams and were seldom conscious of having mistaken the images so conjured up for the realities Popularly the man who mistook images for realities was insane and he who did not was not insane But that did not suffice for a psychological definition for dreaming was within the experience of most people Not only in dreams but in other borderline cases the imagery was very real. And the images in a dream might be very different from the images perceived in the day-time In ordinary everyday life, though we made a very clear distinction between our percepts—i e our experience of the outer world—and what were termed our images, they were interdependent In the case of a motorist passing another motor in the night when the lights of the other car were not switched off, it was not an illusion that the driver of the first car saw the lights after he had passed them: he actually continued to see them for the visual apparatus was still functioning. There were many problems concerning a form of visual memory which was neither an after-sensation nor an ordinary visual image, and this visual memory was termed the eidetic image It was a special memory of an object seen, which some people experienced after the object itself had been removed It was not ordinary memory because details came out in the eidetic image which were not consciously observed in the direct examination This merged into the region of pseudo-hallucination To produce an after-sensation it was necessary to fix one s eyes carefully on one spot in a picture for about half a minute and then continue to fix on the spot for about 20 seconds after the picture had been removed The after-image had not the same colours as the original No one got the eidetic image just as in the picture, those who saw it said it fluctuated sometimes being clear at other times less clear People who got the eidetic image were often those who were devoted to art · some were "unusual" people In Germany it was found that after the fourteenth year the tendency to have these images decreased with the passage of the years unless the adult had the childish type of mind

With regard to the relation of this happening to pseudo-hallucination. Prof Pear gave a remarkable experience in a man who worried about his hallucinations following the war. These eidetic images might occur when the mind regressed to a more childish state, and it was an interesting question how far our modern system of education and culture had educated us out of this habit

Dr. B. H **SHAW** asked whether this eidetic memory was not the same as was spoken of as the artist's memory.

Dr. **DONALD ROSS** asked whether Prof Pear had thought of investigating the auditory sphere in the same way as the visual as auditory hallucinations were the more serious of the two.

Prof **PEAR** replied that the eidetic image was not the same as the artist's memory and many artists did not have a visual imagery while they were drawing. A man who had satisfying visual images did not have the desire to draw at all It seemed that the investigation of auditory pseudo-hallucination was an almost untilled field: these manifestations were usually regarded as grave

Dr K K **DRURY** read a paper on

Ultra-violet Radiation in Mental Hospital Practice.

He said that the Board of Control reported in 1925 that there were, at that time, only five installations of artificial heliotherapy apparatus in mental hospitals He reviewed the history of the use of the photochemical action of light and discussed the relative advantages of the carbon arc, the tungsten arc, and the mercury-vapour arc. The atmospheric air-cooled mercury-vapour lamp was very suitable to the needs of a mental hospital The general health of patients subjected to this treatment was benefited. He considered that the whole subject of dosage and skin reaction was a paradox It was however. found that the best results followed when the rays caused a mild skin erythema Females usually reacted more than did males blondes more than dark-complexioned people and clear-skinned folk more than those with a greasy skin There were three contra-indicating states: agitated melancholics acute maniacs, and epileptics not only did not benefit, under the treatment, but they actually became worse. Simple melancholics manic-depressives, and confused cases seemed to derive definite benefit from the treatment. He referred to the new glazing material vitaglass, which allowed ultra-violet rays to pass freely, ordinary window glass cutting off most of these rays He urged that a careful record be kept of all patients submitted to this treatment. to include weight, pulse, blood pressure, hæmoglobin content, and white cell differential count

The **PRESIDENT** said he hoped this paper would provide a stimulus to other mental hospitals to set up similar installations Horton Mental Hospital. Epsom enjoyed the distinction of having been the first institution of the kind to adopt the treatment Practically all cases with chronic skin diseases ulcers &c.. in the institution were now cured of them. so that the large amount of time which had been spent in dressing these cases could now be devoted to other purposes In the case of a nurse on the staff with a large tuberculous growth in the neck an operation had been decided on, but the light treatment in a short time had made a remarkable cure of it without

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HOSPITALS AND ACCIDENTS —Last year Manchester Royal Infirmary dealt with 27,677 accidents, the greater number of them street accidents and there is consequently, serious congestion of the waiting list. At Sheffield the Royal Infirmary and the Royal Hospital treated about 5000 motor casualties, 600 of the injured persons were in-patients, some of whom stayed for a considerable time Here again there is a long waiting-list. The number of motor accidents dealt with at Leeds General Infirmary was 946, as compared with 768 in the previous year It is intended in future to send accounts of the cost of treating insured patients to the insurance companies concerned

Medical News.

Sir Wm Dunn School of Pathology Oxford —The school will be opened by the Lord Chancellor of England, Lord Cave, the Chancellor of the University, on Friday, March 11th, at 3 30 P M

London School of Hygiene and Tropical Medicine.—In the recent examinations of the Division of Tropical Medicine and Hygiene, the Duncan Medal has been awarded to H W Kumm

University of London . University College —In connexion with the Centenary Celebrations of the College, an address will be delivered by Prof. E H. Starling on Monday, Feb 28th, at 8 30 P M , who has taken for his subject "A Century of Physiology" Sir John Rose Bradford will preside and academic dress will be worn

Royal Sanitary Institute —A sessional meeting will be held at the Institute, 90, Buckingham Palace-road, London, S W 1 on Friday, March 4th, at 5 P M., when a conference on Public Health Meat Regulations will be opened by Mr. W. Brennan de Vine, veterinary superintendent, Birmingham. Dr Charles Porter is amongst those who will take part in the discussion.

Cambridge Graduates' Medical Club —The annual dinner of the Club will be held at the Langham Hotel on Tuesday, March 1st, at 7 15 for 7 30 P M. Sir Humphry Rolleston, President of the Club, will take the chair All members of the Club are invited to be present, and all Cambridge medical men who are graduates of the University are eligible for membership Application forms can be obtained from the honorary secretaries, Mr R M. Vick, of 113, Harley-street, London, W 1, and Dr F G Chandler, of 1, Park-square West, Portland-place, N W 1

James Mackenzie Institute for Clinical Research —Cutaneous hyperalgesia in abdominal disease was the subject of a paper delivered at the Institute on Feb 15th by Dr A. R McKerrow Speaking of the adequate stimulus required to induce pain and hyperalgesia, he said that Mackenzie had held that since mechanical stimuli such as heat and cutting produced no sensation when applied to viscera supplied from the sympathetic system, the adequate stimulus must be provided by a vital activity, and he had considered that abnormal contraction of non-striped muscle was the source of this stimulus Other authors had suggested increased tension or imperfect drainage of the tissues as the cause, but Dr McKerrow pointed out that tension and obstruction were just the conditions that lead to over-activity of the muscular coat Ligat's view that the mucosa contained the receptors for the viscero-sensory reflex was capable of a similar explanation since stimulation of the mucosa resulted in peristaltic activity. Dr McKerrow drew attention to the cases quoted by Ligat which showed that the area of hyperalgesia was constant, no matter what displacement of the related viscus was present

Fellowship of Medicine and Post-graduate Medical Association —At 5 P M on Thursday, March 3rd, at the rooms of the Medical Society of London, 11, Chandos-street, W 1, Dr Arthur Whitfield will lecture for the Fellowship on the Differential Diagnosis of Some Acute Rashes On Tuesday, March 1st, at 3 15 P M , Dr R Wade will lecture at the Royal Northern Hospital on Safety in Anæsthesia Both lectures will be open to members of the medical profession without fee The Brompton Hospital will hold a course from March 7th to 12th inclusive (fee £3 3*s*), instruction will continue all day except Monday and Thursday and will include demonstrations in the cardiographic and radiographic departments and the wards From March 14th to 25th a course in gynæcology will be given at the Chelsea Hospital (fee £5 5s) A comprehensive course will be undertaken at the Royal National Orthopædic Hospital from March 21st to April 2nd (fee £2 2*s*) and a course primarily for the general practitioner will be held in the late afternoon between the same dates at the London Temperance Hospital (fee £1 1s) From March 28th to April 9th at the Queen's Hospital there will be an all-day course in Diseases of Children (fee £3 3*s*) From March 28th for two weeks the Royal Eye Hospital will give a series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye The Fellowship arranges for practical courses in obstetrics and anæsthetics and also makes arrangements for clinical assistantships in gynæcology Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

The Wellcome Historical Medical Museum will be closed from Feb 28th until March 14th, 1927

Medical Society of London —The 154th Anniversary dinner will be held at the Grand Hotel, Trafalgar-square, London, W C , on Monday, March 7th, at 7 30 P.M. Sir Humphry Rolleston, the President, will be in the chair

The conversazione arranged by the International Society of Medical Hydrology (vide The Lancet, Feb 19th p 415) will be held on Thursday, March 3rd, at the rooms of the Medical Society of London.

The Mayor and Mayoress of Wandsworth will open a home for nurses at 75, South Side, Clapham Common, S W , on Saturday next, March 5th, at 3 P.M. The home has been established by the Nurses' Fund for Nurses

London Street Accidents —During the last three months of 1926 there were 25,279 street accidents in London, of which 293 were fatal

School for Defective Children in Huddersfield —The Huddersfield Town Council decided on Feb 16th to build an open-air residential school for physically defective children at a cost of £8000

London Natural History Society —On Tuesday, March 1st, at 6 30 P M., Major E E Austen, deputy keeper of the department of entomology of the British Museum, will lecture on Tse-tse Flies and their Significance to Tropical Africa The lecture will be given in Room 40, Winchester House, London, E C , and visitors will be welcome

Pathogenesis and Treatment of Sciatica —By invitation of the authorities of the University of Liverpool, Prof Vittorio Putti, professor of orthopædics in the University of Bologna, will deliver the Lady Jones Lecture on Thursday, March 10th, at 4 P M., in the Surgical Theatre of the Medical School, his subject being New Conceptions in the Pathogenesis and Treatment of Sciatica The lecture will be open to members of the medical profession.

New Convalescent Home for Miners —In the course of a few weeks a convalescent home for South Yorkshire miners will be opened Low Hall, situated at Sealby, near Scarborough, has been acquired for the purpose, and with the alterations and additions will cost £13,000 A sum of £60,000 has been invested to provide for its maintenance and upkeep Residents will be admitted on April 4th It is proposed to start with 30 residents per week, making a stay of two weeks each

Post-graduate Facilities in Manchester —Active preparations are being made in Manchester for medical courses under the control of a special post-graduate committee of the Board of the Faculty of Medicine of the University The first of these will commence in September of this year and the prospectus will be issued at an early date It is hoped to attract to these medical men from outside districts, for many of them will be whole-time courses. In the meantime the individual hospitals of Manchester are carrying on series of lectures specially suitable for local practitioners The Consumption Hospital is in the middle of a course and the St Mary's Hospitals have a course from Feb 18th to April 8th The Royal Infirmary commences its usual series on Tuesday, March 1st Lectures will be given on this and succeeding Tuesdays till the end of May and on Fridays, March 4th to May 27th Cases will be demonstrated in the wards Details may be had from the post-graduate secretaries of the respective hospitals

Seamen's Hospital Society —On Feb. 21st Prince George presided over the annual court of governors of the Seamen's Hospital Society in the place of his brother, the Duke of York, the President As usual this meeting was very largely attended, nearly a thousand people being present It was pointed out in the annual report that the Society's work for the sailor is well known, but it is not so often realised that it does much to facilitate the study of tropical medicine , it was in the wards of a branch of the Society in the Albert Dock that Sir Patrick Manson brought to the notice of the profession the need for a centre of investigation and study of diseases peculiar to hot climates Sir Burton Chadwick, Parliamentary Secretary of the Board of Trade, moved the adoption of the report and acknowledged the services rendered by the Society to the community, and especially to the sailor He also dwelt upon the clinical aspect of the six establishments of the corporation, speaking of the unusual types of patient and the unusual diseases from which they suffer Dr C E Sundell, senior physician of the Dreadnought Hospital at Greenwich, in moving the vote of thanks to Prince George for presiding, expressed appreciation of the fact that the first public utterances of the Prince should be in the cause of hospitals

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Sale of Food and Drugs Bill

IN the House of Commons on Wednesday, Feb 16th, Mr JACOB presented a Bill to amend the Sale of Food and Drugs Acts, 1875 to 1907 which was read a first time

On Monday, Feb 21st, the Sale of Food and Drugs Bill was read a second time and committed to a Standing Committee

Poor-law Emergency (Scotland) Bill

On Tuesday, Feb 22nd, the Poor-law Emergency (Scotland) Bill was read a second time in the House of Commons and committed to a Committee of the whole House

HOUSE OF COMMONS

WEDNESDAY, FEB 16TH

Tuberculosis in the Navy

Sir PARK GOFF asked the First Lord of the Admiralty the number of sailors discharged from the Navy in 1926 suffering from tuberculosis, and how many of those men were granted disablement pensions —Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied The number of men so discharged was 197 Of these, six were found to be attributable to the conditions of service and pensions on the attributable scale were awarded

Tuberculosis in the Army

Sir PARK GOFF asked the Secretary of State for War if he would state the number of soldiers discharged from the Army in 1926 suffering from tuberculosis, and how many of these men were granted disablement pension —Captain D KING (Financial Secretary to the War Office) replied The number of soldiers discharged from the Army during 1926 on account of tuberculosis was 222, of whom 64 were awarded disability pensions and 84 were awarded non-attributable gratuities

Pensioners with Valvular Heart Disease

Mr BECKETT asked the Minister of Pensions whether he was aware that organic heart disease, such as valvular disease, did not usually affect men until middle age, that a man contracting this disease under 30 years of age might be a complete invalid at 45 years of age, and whether he would consider amending the Pensions Warrant to cover young men who contracted valvular disease of the heart as a result of war service and were not incapacitated until more than seven years after discharge —Major TRYON replied I am medically advised that it is most improbable that a young man contracting valvular disease of the heart as a result of his war service would not be noticeably incapacitated until more than seven years after discharge Should such an exceptional case arise it would be considered in accordance with the special arrangements to which I have already more than once referred in this House

First-aid Outfits on Motor Coaches

Mr RAMSDEN asked the Minister of Transport whether, in view of the numerous accidents to motor coaches and other similar vehicles, he was prepared to make it compulsory that a first-aid outfit should be carried on all such vehicles —Colonel W ASHLEY replied While I view with considerable satisfaction the action of many operators of public service vehicles in equipping their vehicles with first-aid outfits and appliances, and in training their employees in their use, I do not think it would be reasonable to make the provision of such equipment compulsory, nor, indeed, have I at the present time any powers in the matter

THURSDAY, FEB 17TH

Alcohol and Miners' Nystagmus

Mr FORREST asked the Home Secretary whether his attention had been called to a compensation case in Yorkshire in which it was stated that nystagmus was improved by excessive drinking and whether he possessed any reliable information as to the effect of stimulants on this malady.—Sir W JOYNSON-HICKS replied I have no knowledge of the case mentioned by the hon Member, but I would refer him to the findings of the Miners' Nystagmus Committee of the Medical Research Council who deal with this subject on page 50 of their first report It appears that while large doses of alcohol may have a very transient effect in lessening, for an hour or so, the oscillations of the eyes, the influence of alcohol, generally speaking, is markedly harmful and delays recovery

Completion of School Medical Service

Mr COVE asked the President of the Board of Education whether he had asked local education authorities to reconsider their programmes under the head of special services, with a view to substituting proposals in regard to the school medical services in place of proposals involving additional special school accommodation.—Lord E PERCY replied The following is the relevant passage in Circular 1388 of Feb 11th, 1927, to which the hon Member refers —

> *Special Services* —Under this head the Board felt that the first aim of national policy should be the completion of the School Medical Service It will be understood that the Board do not underrate the value of special schools but while no rule can be laid down which is universally applicable to all areas and to all types of physical defect, the completion of the School Medical Service would appear to be of primary importance, and the Board suggest that authorities should concentrate on this definite aim. With regard to provision for mentally defective children, authorities will be aware that this very difficult problem is now being explored by a special committee and, save in exceptional circumstances, it would not seem prudent to incur heavy expenditure at the present moment on new schools for such children or on enlargements of existing schools The adoption of such a policy may make it necessary for authorities to reconsider their programmes under this head, and in some cases to substitute proposals in regard to the School Medical Service for proposals involving additional special school accommodation

Open-air Schools for Invalid Children

Mr BARKER asked the President of the Board of Education if he was aware that Sir George Newman in his last report stated that 57,395 children attending school in 1925 were suffering from latent tuberculosis, malnutrition, debility, and anæmia, and what steps had been taken to provide the necessary open-air recovery schools for such children —Lord E PERCY replied The answer to the first part of the question is in the affirmative As regards the second part, it must not be assumed that additional accommodation is required in open-air schools for anything approaching the number of children mentioned, since most of these children would need to attend open-air schools for only a relatively short period In the past 18 months the accommodation in open-air schools has been increased by some 900 places, and proposals have been approved for over 1500 further places, apart from proposals now under consideration In addition, a number of local education authorities have included proposals for new open-air schools in their programmes

Slum Clearances

Mr TREVELYAN THOMSON asked the Minister of Health how many towns had begun slum clearances under the Housing Act of 1919 and subsequent Acts —Mr CHAMBERLAIN replied The position in regard to the clearance of slum areas in England and Wales is as follows 93 schemes relating to 71 local authorities have been confirmed since 1919 On Jan 1st last tenders had been approved or loans sanctioned in respect of 74 schemes for the erection of new houses in order to provide accommodation for the displaced population and to enable clearances of the areas to be commenced In the case of 72 schemes the areas had been wholly or partially acquired, and clearance was in progress in the case of 56 schemes

Minister of Health and Medical Officer's Salary

Mr WOMERSLEY asked the Minister of Health if he was aware that the Lindsey County Council recently advertised for a lady doctor as an assistant to the medical officer for Lindsey at a salary of £400 per annum, plus travelling allowances; that 15 applications were received from properly qualified persons, that the approval of the Ministry of Health to such appointment had been withheld, and on what grounds the appointment could not be approved —Mr CHAMBERLAIN replied The answer to the first and third parts of the question is in the affirmative As regards the second part, I have no official information as to the number of applicants for this post or as to their qualifications As regards the last part, I should not be able to approve this appointment as I am not satisfied that it would be possible to obtain for the salary proposed an officer with the necessary qualifications and experience of the important work attaching to this post or one who would be likely to secure the coöperation of the medical practitioners in the county

Insulin and Diabetes

Brig -Gen BROOKE asked the Minister of Health whether his medical officers were still recommending the use of insulin for the treatment of diabetes, and whether, in view of the attacks now being made on this remedy, he would define the position of his department —Mr CHAMBERLAIN replied It is not ordinarily part of the duties of medical officers of the Ministry to make recommendations in regard to treatment, though regional medical officers may occasionally offer suggestions at the request of an insurance practitioner As regards the second part of the question, I am advised that the administration of insulin is unquestionably of great value in suitable cases I may add that the mortality-rate from diabetes does not appear to be increasing, although the number of deaths from this disease naturally tends to increase with the increase in the population.

Medical Examination of Assisted Emigrants

Mr RAMSDEN asked the Minister of Health whether he had considered the recommendation made by the inter-departmental committee appointed to consider the effect on migration of schemes of social insurance that the 10*s* 6*d* fee for the medical examination of those seeking assisted passages should be paid from national health insurance funds, and what action he proposed to take —Mr CHAMBERLAIN replied I have considered the recommendation to which the hon Member refers Legislation will be required to give effect to it, and I hope to include the necessary provision in the next Bill relating to national health insurance

Offences against Young Persons

Viscount SANDON asked the Minister of Health what action, legislative and administrative, he proposed to take on the subject of the Report of the Committee on Offences against Young Persons —Sir W JOYNSON-HICKS replied. As regards administrative action I have already commended the Report to the consideration of magistrates and the police Whether any, and if so what, legislation should be proposed is a matter which will be better considered when the Committee on Youthful Offenders, which is now sitting, has made its report Effect was proposed to be given to Recommendation 27 in the Mental Deficiency Bill of last session

Cleanliness of Imported Dairy Produce

Brig -Gen CLIFTON BROWN asked the Minister of Health whether, in view of the fact that neither the Imported Milk Regulations or the Milk and Dairies Order apply to Ireland, the Channel Islands, or the Isle of Man, any inspection was made at the ports or elsewhere of milk and dairy produce coming from those places, or what was the procedure adopted to ensure clean imports of dairy produce —Mr CHAMBERLAIN replied I understand the position to be that no milk is imported into this country from Ireland, the Channel Islands, or the Isle of Man Dairy produce brought from them is subject, under the Imported Food Regulations, to the same inspection at the ports as dairy produce brought from other countries

New Mental Deficiency Institution at Clayton Heights

Mr WILLIAM HIRST asked the Minister of Health when the plans for the new mental deficiency institution at Westwood, Clayton Heights, which had been under consideration by the Board of Control for the past two and a half years, were likely to receive the approval of the Board.—Mr CHAMBERLAIN replied. I am informed that the Board of Control are awaiting the submission by the local authority for approval, of the completed plans, specification, and estimate. The Board will deal with them at once on their receipt

Cost of Mental Patients

Mr. ROBERT RICHARDSON asked the Minister of Health what was the cost to the local authorities for the maintenance of the mental patients chargeable to them, together with the amount granted by the Exchequer in relief of such cost, for the years 1913–14 and 1925–26, respectively — Mr. CHAMBERLAIN replied The total expenditure of local authorities in England and Wales other than out of loans in connexion with mental patients in county and borough asylums was £4,305,000 in 1913–14 and £8,087,000 in 1924–25 This expenditure was met out of the following sources —

	1913–14	1924–25*
Repayments by relatives and others	£612,000	£1,668,000
Specific Government grants	£955,000	£1,010,000
Other sources, mainly rates . . .	£2,738,000	£5,379,000

* Figures for 1925–26 are not yet available

The Mental Deficiency Act, 1913, was not in force in 1913–14 The total expenditure of local authorities in 1924–25 on mental deficiency other than out of loans was £941,000, which was met as to £102,000 from receipts from relatives, &c, as to £392,000 from specific Government grants, and as to £447,000 from other sources, mainly rates

New Accommodation for University of London

Sir WILLIAM DAVISON asked the Chancellor of the Exchequer whether, arising out of the promises made by him to the University of London last June, any plans for the additional accommodation required for the headquarters of the University at South Kensington had been submitted; and whether any land had been purchased from the Bedford Trustees for housing the Institute of Historical Research and the Students' Union at Bloomsbury —Mr CHURCHILL replied: The answer to both parts of the question is in the negative

Fatal Accidents in Coal-mines

Mr. THOMAS WILLIAMS asked the Secretary for Mines the number of fatal accidents which occurred in the coal mines of Great Britain between May 1st and Dec 1st, 1926, and the number of fatal accidents which had occurred since Dec 1st —Sir P. CUNLIFFE-LISTER (President of the Board of Trade) replied. From the beginning of May to the end of November 1926, there were 141 fatal accidents at mines under the Coal-mines Acts, causing 145 deaths For the period Dec 1st, 1926, to the end of January, 1927, the corresponding figures were 164 and 173

MONDAY, FEB 21ST

Ministry of Health

On a supplementary estimate of £220 000 for the Ministry of Health,

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) said that £350,000 was required under this vote for sickness and disablement benefit under the National Insurance Act, and in addition there was a sum of £13,000 for Wales As in Scotland they had found in England and Wales that during the current financial year, although there had been for the most part no prevalence of any marked epidemic or exceptional outbreak of sickness there had been a wholly exceptional increase in claims on certain approved societies especially in the coal mining areas, and the same conditions have led to an increased expenditure on drugs necessitating an extra grant of £25,000 It was estimated that after making an allowance for the increased amounts distributed as additional benefits the claims experience of the approved societies have exceeded that of 1925 by no less than £2,309,000, and it was very significant that the rate of increase and the expansion of sickness benefit was not uniform throughout the country, but that its geographical distribution had corresponded very closely with the incidence of unemployment due to the coal dispute He agreed that in times of industrial depression one might naturally look for some measure of increased sickness But in reviewing the situation in June, the Minister and everyone concerned in the matter could not escape the conclusion that there were large numbers of insured persons who had succeeded in obtaining medical certificates although they were not in fact incapable of work within the definition of the National Insurance Act, and this fact had been confirmed by the very large number of cases that were referred to the medical referees There had been a very high proportion of claimants who, when they were referred to the medical referees signed off in preference to presenting themselves for examination, and in this supplementary estimate there was an extra sum of £30,000 spent in the increased employment of medical referees The normal number of people who were referred to medical referees by approved societies under the National Insurance Act every year was about 200,000. In the period referred to—from the beginning to the end of the coal stoppage—the societies referred between 400,000 and 500,000 persons to the medical referees Of these people some 40 per cent. signed off in preference to presenting themselves for examination, and as for the remainder the examination proved that only 66 per cent. were incapable of work compared with the normal 80 per cent As far as ordinary foresight could see, this was an unforeseen and unfortunate experience so far as national insurance was concerned, which everyone hoped would not be repeated. He did not think that anyone could blame the Department or the approved societies or the actuary for the undoubtedly disastrous consequences which followed the recent industrial dispute So far as they could judge at the Ministry things were now rapidly approaching the normal, and the normal rate of sickness insurance experience would, he hoped, soon be reached. There were other items in the vote which were of a more pleasant nature One arose in connexion with a dental service which was for the first time being inaugurated in connexion with national insurance The money was required for the salaries of the regional dental officers for the last two months of the present financial year Out of the surpluses available for additional benefits as a result of the second valuation of approved societies £2,000,000 have to be re-allocated to pay benefits under the additional benefit scheme, and 6300 societies were engaged in administering this extra benefit

Mr. WHEATLEY said he would move the reduction of the vote by £100 as a protest against the attack which had been made on the medical profession The hon. Member's statement with regard to an honoured and honourable profession could not go unchallenged or uncriticised in that House It amounted to this that during the coal stoppage large numbers of the medical profession were guilty of fraud, and that they were aided and abetted in carrying out their fraudulent policy by large masses of the working classes in this country There was no use mincing matters If it were true as the hon Member speaking for the Government alleged, that the approved societies had been deprived of large sums through members of the medical profession granting certificates that were not warranted, then those medical practitioners were guilty of a very gross system of fraud That was not the view of the medical profession which he had learned from his experience in life or during his brief experience as Minister of Health He had always been taught to look up to the medical profession as being among the most honourable sections of the community and he was sure that they would read with amazement the statements made on behalf of the Government that day He left the Government and the medical profession to settle this between themselves He had no doubt that the medical profession would find means of clearing their character of this unjust imputation cast upon them by the Ministry of Health

Miss WILKINSON said that those who knew the mining areas knew the amount of pressure that was brought to bear on doctors to prevent them putting anyone on the fund they could possibly keep off The statement of Sir Kingsley Wood was the most appalling condemnation of the whole policy of the Ministry of Health throughout the mining dispute. Sir Kingsley Wood's statement was not only a libel on the medical profession but an insult to the intelligence of the Committee The doctors at any rate behaved like decent citizens, and as men with some humanity They tried to get food for these unfortunate men whom the Ministry of Health tried to starve

Dr. VERNON DAVIES said the compliments of Miss Wilkinson to his profession were rather of a back-handed nature, because she said that medical men had put men on to medical benefit who ought not to have been put there That meant that they were in fact doing a dishonest act that they were men of dishonour Malnutrition was not a disease for which a medical benefit could be given and if a doctor put on a medical certificate that the person was suffering from disability or malnutrition, the approved society would not accept the certificate The question which had been raised by the Parliamentary Secretary that evening opened up a very wide subject and brought to the front one of the inherent defects of the National Insurance Act which they recognised was bound to come up some time Sir Kingsley Wood's allegation against the medical profession was a most serious one and ought to be most carefully examined Doctors were human beings like their patients They had hopes and desires and anxieties too, and while in practice they were anxious not to offend their patients unnecessarily Two curious facts were (1) that as soon as the coal stoppage was over, there was a sudden drop in the benefits, and (2) that the approved societies sent a larger number of cases to the medical referees But one of the peculiarities of the Insurance Act was that a person could do no work, or he could do full work. He could not do part work. A doctor could not say that a person was suffering from disability, he must give it a definite name. In his own practice very often he thought that a patient was well enough to do light work, but the patient said, I really have not the strength to do the amount of work I had to do ' and he (Dr Davies) had to take his word The panel doctor was practically in the hands of his patient He might have a strong suspicion, but if he persisted in signing the patient off the patient would go away and tell all his friends "Dr So-and-so has signed me off He is a brute Don't you ever go to him." That went round and the doctor lost 10, 20, 50 or a 100 panel patients It was very difficult for a doctor to prove whether a man was fit for work. Supposing a man said ' I have a pain in my back, and the doctor examined him and said "I cannot find any pain." The patient replied ' No, but I feel the pain. What could the doctor do in that case? So that although he thought that the doctors perhaps were under a little suspicion, that they were a little too lenient and did not exercise sufficient care in sending patients back to work, the main result that they should judge from this supplementary estimate was that a certain number of people finding that they were locked out and could not get relief from the Poor Law suddenly remembered that there was such a thing as the panel doctor Having got on the benefit list they took good care that they did not get off until they were absolutely fit and strong That perhaps was human nature So long as they had national insurance on its present basis they would have that difficulty to face The result was that the moral of the patients and the moral of the doctor in some cases was sapped

Sir KINGSLEY WOOD said that he had not challenged the position of the medical profession in this matter, but as they had been challenged, it was right to point out that the doctors themselves had taken action The matter had not escaped their notice or that of the approved societies In July last the Minister of Health communicated with the appropriate authorities, and in October the National Health Insurance Commissioner attended a representative conference and put the whole of the facts before the medical men. The conference passed a resolution that the Insurance Acts Committee be asked to consider what practical steps could be taken to meet the difficulties raised by the National Health Insurance Commissioner and that in the meantime the representatives of the local medical panel committees pledged themselves to use their influence locally in endeavouring to secure strict adherence to the principles governing certification for purposes of the National Health Insurance Acts He hoped therefore that it would not be thought that he had over-stated the case or that medical men themselves were not alive to the evils arising from the state of things which he had indicated He recognised the difficulties of the doctors but he would emphasise the fact that in the interest of national health insurance and of the other contributors to the fund if they once did away with the fundamental test of capacity for work, they destroyed the whole financial basis of national insurance

On a division the vote was agreed to by 187 votes to 78

TUESDAY, FEB 22ND

Number of Insured Persons

Mr HERBERT WILLIAMS asked the Minister of Health the estimated number of persons insured under the National Health Insurance Act on Dec. 31st, 1926 and, for comparison the number on Dec 31st, 1925 —Mr CHAMBERLAIN replied: The approximate number of persons insured under the National Health Insurance Act in England and Wales on Dec. 31st 1925, was 14,196,000 The necessary information is not yet available to enable the number insured on Dec 31st, 1926, to be furnished for comparison, but I am advised that they are roughly the same as in the previous year

Rejection of Recruits for Air Force

Mr HORE-BELISHA asked the Secretary of State for Air how many applicants were accepted in the year 1926 for His Majesty's Air Force, and how many were rejected on account of some physical or medical disability —Sir S HOARE replied The answer to the first part of the question is 379 men and 1037 boys, to the second 258 men and 34 boys

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES

ROYAL SOCIETY OF MEDICINE 1, Wimpole street W

MONDAY, Feb 28th.—8 P.M. ODONTOLOGY Dr H W Barber The Relationship of Diseases of the Skin to Dental Infection Mr E C Sprawson Further Notes on Dentigerous Cysts Cases will be shown

TUESDAY, March 1st —8 30 P M ORTHOPÆDICS Discussion on the Treatment of Pes Cavus Opener Mr Rocyn Jones Mr Naughton Dunn and others will take part 8 30 P M., PATHOLOGY Laboratory Meeting at the Lister Institute, Chelsea gardens, S W 1 *Papers* M. Robertson The Werbitzki Phenomenon in a Free-living Flagellate P Bruce White Reactions of Alcohol soluble Bacterial Substances to Salt and Serum M C Maitland Selection of Non virulent Varieties from Virulent Types of *C diphtheriæ* F M. Burnet Roughness and Smoothness in Relation to Bacteriophage Sensitivity H L Schütze Some Augmentor Effects in Growth of *B pestis* H B Maitland Antigenic Properties of Foot-and-Mouth Virus in Relation to Prophylaxis T Lumsden In Vitro Experiments on Immunity to Cancer

WEDNESDAY —5 30 P M, TROPICAL DISEASES AND PARASITOLOGY *Papers* Dr P. Manson-Bahr Plasmochin in Malaria Dr N A Dyce Sharp Onchocerciasis (communicated by Sir William Prout) Prof R T Leiper Note on the Geographical Distribution of *Physaloptera caucasica* v Linstow in Africa 8 30 P M, SURGERY Discussion on the Surgical Treatment of Chronic Non tuberculous Arthritis Opener Mr C Max Page Other Speakers Dr Beddard (Medicine), Mr P C Elmslie (Orthopædics)

THURSDAY —4 30 P M, BALNEOLOGY AND CLIMATOLOGY Discussion on the Breakdowns of Middle Life Openers Dr Campbell McClure Dr Wybauw (Spa) and Dr Fortescue Fox

FRIDAY —5 P M LARYNGOLOGY (Cases at 4 P M.) *Paper* Dr Irwin Moore Pathology of Œsophagectasia Dilation of Œsophagus without Anatomic Stenosis at the Cardiac Orifice Cases and Specimens will be shown by Mr Herbert Tilley Dr Dan McKenzie, Mr W M Mollison, Mr A J Wright Mr L Graham Brown and others 8 30 P M, ANÆSTHETICS and ODONTOLOGY Special joint discussion on Anæsthetics in Dental Operations Openers Dr Bellamy Gardner (Anæsthetics), Mr Ivan Spain (Odontology)

SATURDAY—10 30 A M, OTOLOGY (Cases at 9 30 A M.) Cases and Specimens will be shown by Mr Nicol Rankin, Mr Banks-Davis, Mr E Watson Williams, Mr Broughton Barnes, Mr Gill Carey, Mr T B Layton, Mr Graham Brown, and others

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W

MONDAY, Feb 28th, to SATURDAY, March 5th—FELLOWSHIP OF MEDICINE Special lecture at the Medical Society, 11, Chandos street, Cavendish square, W, at 5 P M on THURSDAY, Dr Arthur Whitfield The Differential Diagnosis of Some Acute Rashes Open to all members of the medical profession, without fee—LONDON LOCK HOSPITAL, Dean street, W Special Course in Venereal Diseases Clinical work daily and special lectures—NATIONAL HOSPITAL, Queen square, W C Special Course in Neurology Instruction daily in the O P Department, and special lectures and demonstrations—Further information from the Secretary

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, Feb 28th—10 A M, Mr MacDonald Genito Urinary Operations 2 P.M, Mr Addison Surgical Wards 4 P M, Sir Henry Simson The Supports of the Uterus

TUESDAY, March 1st—10 A M, Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M, Mr Vlasto Throat, Nose, and Ear Department

WEDNESDAY—10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Out patients 4 P M, Dr Manson-Bahr

THURSDAY—10 A M, Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 4 P M, Sir Henry Simson Meddlesome Midwifery

FRIDAY—11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out patients

SATURDAY—9 30 A M, Dr Burnford Bacterial Therapy 10 A.M., Mr Vlasto Operations on Throat, Nose, and Ear

Daily—10 A M to 5 P M, Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays, 10 A M to 1 P M)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY, Feb 28th—10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical, and Gynæcological Clinics Operations

TUESDAY, March 1st—2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations

WEDNESDAY—2 30 P M. to 5 P M, Medical, Skin, and Eye Clinics Operations

THURSDAY—11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations

FRIDAY—10 30 A M, Throat, Nose, and Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations

On MONDAY, Feb 28th, and TUESDAY, March 1st, there will be special demonstrations of Medical Cases and Surgical Cases by Dr A J Whiting and Mr W E Tanner respectively

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S W

TUESDAY, March 1st—5 P M, Dr F. Dearden Health Hazards in the Cotton Industry (First Milroy Lecture) THURSDAY—5 P M, Second Milroy Lecture

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C

WEDNESDAY, March 16th—5 P M, Dr Hildred Carlill Simulation of Surgical Affections by Hysteria (Arris and Gale Lecture)

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn road, W C

FRIDAY, March 4th.—4 P M, Mr Watkyn Thomas

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, Leicester square, W C

TUESDAY, March 1st—5 P M., Dr Wilfred Fox, Cutaneous Syphilis (1)

THURSDAY—5 P M, Dr Wilfred Fox Cutaneous Syphilis (2)

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE.

TUESDAY, March 1st—3 15 P M, Dr R Wade Safety in Anæsthesia

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C

THURSDAY, March 3rd—4 P M, Dr A M H Gray Ringworm

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

MONDAY, Feb 28th.—6 P.M (at the Medical Society of London, 11, Chandos street, W), Dr H Gardiner Hill· Internal Secretions as Factors in Nutrition

MANCHESTER ROYAL INFIRMARY, POST GRADUATE COURSE

TUESDAY, March 1st—4 15 P M, Mr John Morley· Graves's Disease from the Surgical Standpoint

FRIDAY—4 15 P M, Mr P R Wrigley Demonstration of Surgical Cases

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester

WEDNESDAY, March 2nd—4 15 P M, Mr A. C Magian· The Use and Abuse of Gland Extracts in Gynæcology

ST MARY'S HOSPITALS, Manchester

FRIDAY, March 4th—4 30 P M (at the Whitworth street, West Branch), Post graduate Lecture, Dr F H Lacey A Visit to the Wards

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS,

FRIDAY, March 4th—3 30 P M. (at the Royal Hospital) Dr Skinner Neurological Cases

Appointments.

MAILER, R M D Edin, F R C S Edin, has been appointed Assistant Surgeon, Victoria Infirmary, Glasgow

THOMSON, M SYDNEY, M D Camb, M R C P Lond, Junior Physician to the Skin Department at King's College Hospital

Royal Free Sussex Hospital GABB, H S, M B, Ch B Camb, Honorary Surgeon, CAIGER, G H, M B Camb, F.R C S Eng, Assistant Surgeon

Vacancies.

For further information refer to the advertisement columns

Barry Urban District Council, Accident and Surgical Hospital—S £750

Bristol Royal Infirmary—H P's, H S's, Dental H S, &c Each at rate of £80

Burton-on-Trent Infirmary—H S Jun Res H S £150

Carshalton Surrey, Queen Mary's Hospital for Children—Jun. Asst M O £500

Chesterfield and North Derbyshire Royal Hospital—Fifth H S. At rate of £100

East Riding Mental Hospital, Beverley—Med Supt £900

Federated Malay States, Central Mental Hospital—Second Asst. Med Supt £700

Great Yarmouth County Borough—Asst M O H, &c £600

Holland (Lincs) County Council—Asst M O H £600

Hospital of St John and St Elizabeth, 40, Grove End-road, N W—Asst P

Hospital for Tropical Diseases, Endsleigh gardens, W C—Med. Supt £250

Hull City Education Committee—Asst Sch M O £600

Ipswich, East Suffolk Administrative County—Asst County M O H, &c £625

Leicester Royal Infirmary—H S and H P At rate of £125 and £120 respectively

Leicestershire County Council—Asst County M O £750

London, Female Lock Hospital, 283, Harrow road, W—Surg Res. £100

London Jewish Hospital, Stepney Green, E—Med Reg and Out patient Asst Also Surg Reg Each £50

London Lock Hospital, 91, Dean-street, W—Surg Reg £100

Manchester, Ancoats Hospital—Hon Phys

Manchester, Baguley Sanatorium—Asst M O £350

Manchester, Royal Children's Hospital, Gartside street—Asst M O· At rate of £150 Also Res Surg O At rate of £80

National Hospital, Queen-square, W C—Res M O £200

Nottingham City Mental Hospital—Jun Asst M O £350

Nottingham General Hospital—H P At rate of £150

Oxford, Radcliffe Infirmary and County Hospital—H P and Cas H S Each at rate of £120

Royal Free Hospital, Gray's Inn road, W C—H P to Children's Dept

Royal National Orthopædic Hospital, 234, Great Portland street, W—H S At rate of £150

St Marylebone Hospital, Ladbroke-grove, W—Third Asst M O £300

St Mary's Hospital for Women and Children, Plaistow, E—Hon. Asst Surg

St Mary Islington Infirmary, Highgate Hill, N—Asst M O At rate of £350

St Peter's Hospital for Stone, &c, Henrietta street, Covent garden, W C—H S At rate of £75

Samaritan Free Hospital for Women, Marylebone road, N W—H S At rate of £100

Southend on Sea County Borough—Asst M O H, &c £600

Southampton, Royal South Hants and Southampton Hospital—Jun H S At rate of £150

Surrey, Redhill, Royal Earlswood Institution—Jun Asst M.O At rate of £250

West Bromwich County Borough—Asst M O H £600

West London Hospital, Hammersmith-road, W—H P and two H S's Each at rate of £100 Also Hon. Med Reg £100

Western Ophthalmic Hospital, Marylebone road, N W—Sen and Jun Non-Res H S's At rate of £150 and £100 respectively

Willesden Municipal Hospital—Res M O £150

Yeovil Union—M O, &c £230

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Audley (Staffs), Calvert (Bucks)

Births, Marriages, and Deaths.

BIRTHS.

Barclay—On Feb 20th, at 2, Greenhead road Huddersfield, the wife of William Barclay, M B, F R C S Edin, of a son

Borham—On Feb 14th, at Marsham street, Westminster, S W, the wife of John Douglas Borham, M R C S, L R C P, of the Royal Army Medical Corps, of a son

Pope.—On Feb 16th, at Bournemouth, the wife of Surgeon-Captain W H Pope, O B E, R N (retired), of a daughter

MARRIAGES

Lean—Palmer—On Thursday, Feb 17th, at St Margaret's, Streatham on Hill, Oscar Bevan Lean, M R C S, L R C P, to Winifred Mary, daughter of Mr C Palmer and the late Mrs Palmer, of Brixton, S W

Mavor—Jenkins—On Feb 12th, at S Matthew's, Westminster, Hilary Mavor, M R C S, L R C P to Evelyn, daughter of Brig-Gen N F Jenkins, C M G, C B E, of Greycoat gardens, S W

DEATHS

Guillemard—On Feb 18th, suddenly, at a nursing home, after a long illness, Bernard James Guillemard, M D, O B E, formerly of Rondebosch, Cape

Knight—On Feb 17th, at Lytton avenue, Letchworth, Herts, Charles Frederick Knight, M D, M R C S, L S A, aged 85

Parson—On Feb 14th, Francis John Parson, M R C S, L R C P, of "Ryecroft" Weybridge, and late of Cape Town, in his 80th year

Phillips—On Feb 18th, at Hardwick Lodge, Streetly, George Arthur Phillips, J P, M R C S, in his 78th year

Porter—John Fletcher Porter, C B E J P, M B Lond, of 206, Upper Clapton road, London, died on Feb 17th, aged 54

Weeden—On Feb 14th, at Royal terrace, Weymouth, Alfred Douglas Weeden, M R C S, L R C P, aged 32

N B—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages and Deaths

Queen Alexandra Memorial—Speaking at a meeting at Birmingham to inaugurate a local appeal on behalf of the National Memorial to Queen Alexandra, the Duke of Portland, the President, stated that the present total of the fund is £171,000, of which £71,000 has been given by Scotland

St Mark's Hospital—At the annual meeting of St Mark's Hospital, City-road, held at the Mansion House on Feb 18th, the Lord Mayor (Sir Rowland Blades), who presided, quoted the striking increase in the hospital's work and a long waiting-list of patients in justification of the construction of the new wing now in course of erection Mr Swinford Edwards and Sir C Gordon Watson spoke of the pioneer character of St. Mark's which had led to the reception of patients from all over the kingdom, cases of peculiar difficulty and complexity affecting the colon and bowel tending to gravitate to the institution A gratifying circumstance of the meeting was the promise of a gift of £500 by Mr Sheriff Shepherd towards the £5000 still to be raised for the Extension Fund

Notes, Comments, and Abstracts.

THE INFLUENCE OF JOHN HUNTER UPON EARLY AMERICAN SURGERY

Being the Hunterian Lecture delivered before the Hunterian Society at the Mansion House, London, on Jan 17th, 1927,

By John M T Finney, MD,

PROFESSOR OF CLINICAL SURGERY AT JOHNS HOPKINS HOSPITAL, BALTIMORE, SOMETIME PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS AND CHIEF CONSULTANT IN SURGERY TO THE AMERICAN EXPEDITIONARY FORCE

(*Concluded from p 422*)

It has been frequently stated that American medicine really had its beginning with the close of the Revolutionary War and the development of a national consciousness

This was the great formative period of American medicine Its swaddling clothes were being laid aside for garments of maturer years The profession was being gradually emancipated from dependence upon and subservience to European theories and institutions While the great mass of the profession were as yet neither learned in science nor skilled in practice, still there were to be found, scattered here and there throughout the widely expanding country, those who had attained some degree of proficiency in both

The Direct Influence of Hunter

A review of the medical men of prominence in America during the latter part of the eighteenth century and the early part of the nineteenth shows a surprisingly large number of those who had received their surgical training either in whole or in part under John Hunter or one of his pupils The number of these is so large that I can here do no more than call attention to a few of the more eminent among them, giving only a very sketchy outline of their work and the more important contributions they made It might be well, in passing, to emphasise the fact that John Hunter's influence was general, not local Although at first more manifest in Philadelphia, because of the rather extraordinary group of young men from that city who were his earliest American students, it was to be found extending even to the then far Western frontier, carried there by such men as Ephraim McDowell of ovariotomy fame, and Benjamin Dudley, voices crying in the wilderness, preparing the way for the great advances in scientific medicine to follow

If time allowed it would be interesting to attempt to trace, step by step, the influence exerted by John Hunter in America down through one surgical generation after another to the present day So virile and dominating was his influence that it may be readily recognised and transmitted like other distinguishing hereditary traits Take, for example, my own former chief, the late Prof William S Halsted While his early training had been received in the New York School of Surgery, founded by John Jones, his later and predominating views were largely coloured by his continental experiences and associations covering an extended period Nevertheless, John Hunter has never had a more enthusiastic champion or more understanding exponent of his principles of scientific surgery than Halsted His habits of thought and action were throughout characteristically, perhaps unconsciously, Hunterian. That he admired him greatly is evidenced by the fact that his own laboratory of scientific research at Johns Hopkins Hospital, established for purposes of animal experimentation, bears the name of Hunter—"The Hunterian Laboratory"

To one who has had the good fortune, as I have, to have been connected, from its beginning, with the Johns Hopkins School of Surgery, founded by Halsted, the greatest of American surgical teachers, it is easy to recognise in his pupils many of the traits that have characterised the Hunterian School In the various surgical clinics and medical schools scattered throughout the United States, headed by former students trained by him, the same general methods and ideas are being promulgated, and thus the seed sown by Hunter so many years ago is being continually replanted and perpetuated by succeeding generations

Medical Journals and Museums

But another powerful means of diffusing medical knowledge and promoting the welfare of the profession by means of the printed page was inaugurated *about this time*—namely, the first of the long line of medical periodicals in the United States of America. The *Medical Repository* was founded in New York in 1797 by Samuel Mitchell, Elihu Smith, and Edward Miller, the first named of whom studied for a term of years in both Edinburgh and London, where he attended Mr Hunter's lectures, and undoubtedly was stimulated by him to record facts as well as to observe them. Smith, a brilliant product of the Philadelphia Hunterian School suffered an untimely death from yellow fever The *Repository* was a quarterly journal and its pages contained many of the ablest medical and scientific productions of the period It and its successors rapidly became powerful auxiliaries in the cause of medical education and the diffusion of knowledge

The predominating influence exercised by John Hunter over medical thought in the United States is still further emphasised in the collection of anatomical specimens and the formation of museums, a passion with him John Collins Warren, the founder of the Warren Museum of Harvard Medical School and as we will see in a moment one of the founders of the Massachusetts General Hospital as well, was a student under the famous coterie of Hunter's pupils at Guy's and at St Bartholomew's at the beginning of the nineteenth century, where, almost at first hand, he learned Hunter's methods From them he acquired the taste for making and preserving anatomical specimens His grandson still living, who bears the same distinguished name, now professor of surgery, emeritus, of Harvard University, my former teacher, in a personal communication writes me thus "I have no doubt that Hunter's example stimulated my grandfather, John Collins Warren, to carry out this work"

Caspar Wistar who succeeded William Shippen as professor of anatomy in the University of Pennsylvania, was the author of "A System of Anatomy," now almost forgotten, the earliest treatise on anatomy published in this country "His description of the ethmoid bone was classical His memory survives in the Wistaria Vine, which was named after him" He was the founder of the present Wistar Institute of Anatomy and Biology in Philadelphia He too, while studying in London came under the spell of Hunter's influence Sir William Osler, in an address entitled the Leaven of Science, delivered at the opening of the Wistar Institute writes "It is pleasant to think that direct from John Hunter came the influence which made anatomy so strong in this school, and the zeal in the acquisition of specimens which ultimately led to the splendid collections of the Wistar-Horner Museum"

Teaching Hospitals

In 1769, on the occasion of the conferring of the first medical degree by King's College in New York, Samuel Bard, the same who it will be recalled, was largely instrumental in the founding of the King's College Medical School, delivered a discourse upon the Duties of a Physician In the course of this address (which seems to have been hardly less effective than that delivered in Philadelphia in 1765 by his friend John Morgan in connexion with the opening of the Philadelphia Medical College) Bard laid especial emphasis, upon the usefulness, indeed the necessity, of a public hospital, as a most efficient means of relief for the suffering of the sick poor as well as for the instruction of medical students He also emphasised the prime importance of its immediate establishment So convincing were his arguments that the effect of this address upon his audience was immediate and pronounced A hospital building, the forerunner of the present New York Hospital, was shortly afterwards begun When about completed, in 1773, the building was destroyed by fire, so that the opening of the hospital was delayed until the year 1791 During all of this time, and for many years thereafter, Dr Bard first supervised its construction and then served as one of the visiting staff This man, who was so influential in the medical life of New York and who was founder of both its first medical school and hospital, had been a pupil at Edinburgh and under Hunter in London

The next hospital, and to this day one of the finest appointed and best of its kind in the States—the Massachusetts General Hospital—was founded in Boston in 1811 by John Collins Warren, the founder of the Warren Museum, and James Jackson It was not opened for patients, however, until ten years later In their circular letter appealing to the public for funds this significant statement appears, "A hospital is an institution absolutely essential to a Medical School" An early enunciation of a principle long since established

John Collins Warren and the Introduction of Anæsthesia

Warren, one of the most interesting and productive of the group in the Hunterian era of American surgery, was a member of a family whose name has been well known in the surgical annals of the United States from pre-revolutionary times down to the present day Born in Boston and graduated at Harvard, he went to London in 1799, where as a dresser at Guy's Hospital he came, as has been stated, directly under the influence of the two Coopers, William and Astley, with the latter of whom there was formed a friendship that lasted throughout life. He also took advantage of the opportunities offered for study at the clinics of Cline and Abernethy at St Bartholomew's and of Home at St George's From these he learned the new science of surgical pathology so recently inaugurated by Hunter After some time spent here, he went to Edinburgh for a year, then to Paris for another year He then revisited London for a period, and returned home in the autumn of 1802 At once he became associated with his father as prosector for his anatomical lectures at Harvard, and succeeded him as full professor in 1815. Shortly after this the *Boston Medical and Surgical Journal*, a weekly publication still in active existence, was formed by the merging of two other journals He became one of its [illegible] editors "But the crowning event of Dr Warren's career was the part that he played in the introduction of surgical anæsthesia On Oct 16th, 1846, he performed a major operation at the Massachusetts General Hospital while the patient was under the influence of ether administered by Dr W T G Morton The experiment was so successful that it was used in other operations on the following day This experience showed that ether as an anæsthetic agent was safe, certain, and complete, a triple feat which announced to the world that what had been dreamed of for many years had become a reality"

Of course, as is well known, Crawford W Long, of Georgia, had performed surgical operations four years earlier, in 1842, under general anæsthesia induced by sulphuric ether. Little publicity, however, had been given to the fact, and to Warren is given the credit for the introduction of ether into general use Both Long with ether and Jones with pylorectomy, as will be seen, because of failure to publish their work, did not receive the credit undoubtedly due to them McDowell was more fortunate in having Lizars as his publicity agent

Philip Physick and Experiments on Sutures

That Hunter's teaching with regard to the value of the experimental method in surgery bore actual fruit there is abundant evidence to be found in a review of the early surgical literature For example, in the *Eclectic Repertory and Analytical Review*, vol vi, p 359, Philip Syng Physick long a student of Hunter's, makes a preliminary report with regard to his experience in the use of absorbable ligatures He says "Having repeatedly experienced considerable delay in the handling of wounds from ligatures applied on divided arteries remaining for a long time in the sore before they could be removed, I have, for many years, been very desirous of avoiding such an inconvenience in the use of ligatures It appeared to me, therefore, that ligatures might be made of leather, or of some other animal substance, with which the walls of a vessel could be compressed for a sufficient time to prevent hemorrhage, that such ligatures would be dissolved after a few days, and would be evacuated with the discharge from the cavity of the wound"

"Under this impression, I requested Dr Dorsey (his nephew) to try the experiment on a horse, by using a ligature of buckskin This was found to answer every purpose, and came away in a few days" He states that he had tried the effect of various other absorbable materials, buckskin, kid, parchment, and catgut, and goes on to say, "future experiments will probably place at the command of the surgeon a variety of these ligatures which may be so selected as to remain the exact length of time he may require" A prophecy long since fulfilled

Philip Syng Physick, with the singularly appropriate name, was the personal friend and one of the favourite pupils of John Hunter He is referred to by medical historians generally as the first great American surgeon, by some as the Father of American Surgery He graduated in arts at the University of Pennsylvania in 1785 After a preliminary course in the office of Dr Kuhn (during which period he attended lectures in the Philadelphia College of Medicine, but did not take his degree), with his father he went to London, and by him was placed under the care of John Hunter, where he became a member of his family for a period of two years "The first intimation of the course of study which his principal wished him to pursue was made in characteristically Hunterian fashion It was given in reply to a question from the father of young Physick as to what books it would be necessary for him to procure for his son's use "Then, Sir, follow me," said Hunter, "and I will show you the books your son has to study," and leading the way from his study to the dissecting-room, he pointed to several bodies, adding, "There are the books which your son will learn under my direction, the others are fit for very little"

Physick assisted Mr Hunter in many of his experiments, and was recommended by him for the position of house surgeon at St George's Hospital It is stated by his biographers that Mr Hunter later invited him to share with him in his professional business, looking to the ent establishment of Physick in London, possibly successor This offer was declined, however, but an be no doubt that Physick "cherished in after memory of John Hunter for whom he felt great tion and more profound veneration than for ier man" Physick returned to Philadelphia in 1792, ortly after was elected to the surgical staff of the lvania Hospital In 1800 he began a course of s on surgery which attracted large numbers and attention, so much so that shortly thereafter the of surgery and anatomy, filled by Shippen, was l and Physick was appointed to the professorship of y, where for 13 years he taught large classes of ts the principles of surgery as learned from his r, John Hunter Through these students, coming all parts of the country, his ideas became widely unated

sick's contributions with reference to the recurring nics of yellow fever, the treatment of ulcers, mechanical ires and rest in the treatment of joint affections and res, especially of the thigh, an improved instrument hotomy, an improved method for ligating the pudic , advances in the treatment of stricture for the ra, a method of stimulating union in case of ununited ire of bone by use of the seton, plastic surgery, forate anus, operations upon the tonsil and the use e stomach-pump—all attest the wide range of his ities in both medicine and surgery Says Dr Welch, ysick was almost as much a mouthpiece of the doctrines hn Hunter in America as was Abernethy in London "

Experimental Pylorectomy in 1779

especial interest, however, is the work of an early rimental surgeon, described by Merrem as "a certain ous professor, highly respected and renowned among medical profession in Philadelphia" Just who was famous Philadelphian is not stated, but after an ustive study of the records and by careful comparison lates and other facts bearing upon the circumstances ted, there can be little doubt, I think, that the author hese experiments was none other than John Jones He a native of Philadelphia, who had returned there to nd the closing years of his life, but who was, as we have a, the first professor of surgery in King's College, New rk, where he had served with distinction for many years Merrem's Thesis, published in Giessen in 1810, the following interesting report appears "A certain famous professor, hly respected and renowned among the medical profession Philadelphia was greatly concerned by the pre- ture death of Dr Middleton, whose death was caused by e hardening and narrowing of the lower orifice of the mach He therefore concentrated his attention on the ost effective remedy for this very dangerous malady e terrible suffering of his beloved friend could not be moved nor even relieved, although the most approved medies of the time were used Nothing, therefore, was ft other than to remove the cause of the disease—that is, extirpate the pylorus This operation seemed involved such serious danger that at the time his friend would not erform it Two years before he had had experiments ade on several dogs, some of them in perfect health, ne a puppy, but they all terminated fatally " Then ollows a more detailed account of the experiments

The Dr Middleton here referred to was none other than eter Middleton, a member of the first medical faculty of King s College, and as such had been closely associated with John Jones Search of the records shows that Middleton had suffered for some time from obstruction of the pylorus, of which affection he finally died in 1781

Since it is definitely stated that these operations upon dogs had been performed two years previously, in 1779, it will be observed that this work of John Jones antedates by almost a century the famous experiments of Gussenbauer and Von Winiwarter in Billroth's clinic, first performed in 1876, to which priority has heretofore been given It should be stated, in justice to them, that reference to Merrem's paper is made in their report It is interesting to speculate as to just how far John Jones, in his pioneer experiments on pylorectomy in dogs, was influenced by the teaching of John Hunter, whose disciple he was

Jones first began his medical studies under Dr Thomas Cadwallader of Philadelphia He then went to London and attended courses with William Hunter, McKenzie, and others, and at St Bartholomew s under Pott Afterwards he went to France, where he obtained his M D at the University of Rheims Later he visited Paris, Leyden and finally Edinburgh He later revisited London and renewed his friendship with Mr Pott and Dr Hunter, and was in attendance also upon the lectures of John Hunter His influence throughout was largely exerted toward the simplification of methods in surgery, undoubtedly the result of the teaching of Pott and Hunter This was especially evident in his work on wounds and fractures, a text-book widely used for a time John Jones was one of the outstanding figures in the early history of surgery in America, and the impress that he left upon it was deep and lasting

Vascular Surgery

Surgery of the vascular system, so intimately associated with the name of Hunter, early reached a high state of development in the colonies It was, of course, largely limited to ligation of the great arteries Among the early American surgeons noted for their successful work in this respect may be mentioned Valentine Mott, Wright Post, Rogers, Twichell, Gibson, and many others Indeed the Hunterian influence in this branch of surgery, thus early so pronounced, may be truly said to have continued unabated down to the present day through the original and important contributions of the late Prof Halsted and Rudolph Matas of New Orleans Lack of time prevents more than a brief reference to the first two named

Wright Post, after preliminary study in New York, went to London in 1784 Here he spent two and a half years He also made several subsequent visits There he attended the well-known clinics, Hunter's among the number Immediately upon his return to New York he began a course of anatomical and surgical lectures Later he became professor of surgery in Columbia College He acquired great reputation as an operative surgeon. His chief title to fame perhaps rests upon the remarkable success achieved by him in the ligation of large arteries He first, in America, ligated, and that successfully, the femoral artery after the manner of Hunter He was the first surgeon to tie the common carotid with success also the subclavian artery in its third portion He was one of the great exemplars in America of the principles laid down by John Hunter in the surgery of the arterial system

Valentine Mott took his medical degree in Columbia University in 1803 He then went to London where he became a pupil of Sir Astley Cooper, and through him, and like him, undoubtedly influenced by Hunter, he later achieved great fame from his extensive work in vascular surgery He also spent some time in Edinburgh under John Bell On his return to New York, true to his teachings, he began a course of private lectures on surgery which led to his appointment as lecturer and later, professor of surgery in Columbia He continued lecturing for 56 years—an extraordinary record His lectures were noted for their simplicity and the systematic way in which he dealt with his subjects Like Hunter's, they dealt largely with fact and little with theory Perhaps more than any other American surgical teacher he impressed upon his students the great importance of their work in anatomy and continued dissection As an operating surgeon, he showed great skill The particular operation which made his reputation upon both sides of the Atlantic was the ligation, in May, 1818, of the innominate artery Besides the innominate, says Billings, "Mott tied the subclavian eight times, the carotids 53 times, the common iliac once, the external iliac six times, the internal twice, the femoral 57 times, the popliteal 10 times, in all 139 ligations of the great vessels for aneurysm " A most extraordinary record, especially when one considers that the bulk of his work was done in the pre-anæsthetic era, and all of it in the pre-Listerian period Mott's accomplishments were not alone in the line of vascular surgery He did excellent work in bone and joint surgery, lithotomy and plastic work, especially operations for hare-lip His is one of the outstanding names in American surgery

McDowell's Ovariotomy

This list of early American exponents of Hunter's teachings would not be complete without at least a passing reference to one whose title to fame rests, perhaps, upon a single contribution

Ephraim McDowell had a very rudimentary education under Dr Humphries, a graduate of Edinburgh Through his influence McDowell went abroad and studied for two years in that University, where he came under the influence of John Bell, who made a deep and lasting impression upon him He spent a short time in London, attending the chief hospitals and clinics He then returned to his native country, and moving West, became one of the pioneer surgeons in that as yet undeveloped region In 1809 he performed the celebrated operation for the removal of an ovarian tumour, which constitutes his chief title to fame He later reported a series of five similar cases with four recoveries McDowell had difficulty in getting his first report published, as those to whom he submitted it refused to believe that an unknown backwoods doctor could accomplish anything like that It was finally accepted by the *Eclectic Repertory* of Philadelphia and appeared in that journal in 1817, but attracted very little attention—so little, in fact, that Nathan Smith knew nothing about it in 1821, when he reported his first case of ovariotomy as something new It was not until the account sent by McDowell to his old preceptor John Bell of Edinburgh, and which because of his death, did not reach him, but fell into the hands of Mr Lizars, an Edinburgh surgeon, and was published by him in the *Edinburgh Medical and Surgical Journal* in 1824, that McDowell received the recognition and credit due him He was an excellent anatomist, and gave courses in practical anatomy He was also a great lithotomist He had this peculiarity—he always preferred to operate on Sunday morning, saying that he liked to have the benefit of the prayers of the church

The Hunterian Tradition.

J J. Mumford, in his interesting work entitled, "Surgical Memoirs," in calling attention to the fact "that the best early American surgery grew out of English surgery, with John Hunter as its prophet," very aptly and justly divides American surgery into three eras, the first of which he calls the "Hunterian Era" The honoured names of those first surgeons, who drew their inspiration from John Hunter and whose accomplishments brought credit to their native country, are, as we have seen, William Shippen, jun, John Jones, Philip Syng Physick, Caspar Wistar, Wright Post, Valentine Mott, Ephraim McDowell, John Warren, John Collins Warren, and Nathan Smith That every one of these men—those who came directly under the personal influence of John Hunter as well as those who obtained their training secondhand, as it were, from his pupils—bear his marked impress and show it most emphatically in the open-mindedness, the honesty of purpose, and the zeal after truth which characterised their work, I have attempted to make clear That this influence has been further broadcast throughout the United States through the teachings of their pupils, and is active, even down to the present day, is apparent to the most casual observer

I have touched upon but a few of the more important results of John Hunter's teaching and influence upon early American surgery That he did, through his students, wield a commanding influence over medicine in general, the founding of medical schools and hospitals, and the collection of anatomical and pathological specimens is a matter of history But his greatest contribution, perhaps, was the emphasis which he placed in his teaching upon the correct use of one's faculties, careful observation, the collection of data, inductive reasoning, experiment, and the disregard *of tradition This is the legacy* that he has left to enrich the entire surgical world Since his time various other influences have been felt, have left their impress, and been succeeded in turn by others, the French, then the Austrian led by Billroth, and, lastly, the German and the Swiss led by Kocher. But none has been more profound and lasting than that inaugurated by John Hunter

Medical thought and action may be influenced in many ways and through various channels The magnetism of some compelling personality in medicine or surgery may have such a dynamic effect upon his associates and contemporaries as to affect profoundly their entire professional outlook Such an influence, not apt to be more than local, possibly national, is not lasting, nor is it readily transmitted, and it begins to wane as soon as the personality passes off the stage

Another great teacher arises, he may or may not have a personality, but he has something else He it is who discovers underlying principles and enunciates them for all time Whether or not such an one lives or dies, his influence continues, recorded and perpetuated in the lives and work and thought of his pupils, and those who come after Such a genius was John Hunter The principles that he, by dint of ceaseless labour, close observation, sound reasoning and carefully conducted experiment, worked out and finally promulgated are just as true and just as binding to-day as when first announced by him This is why he has remained such a power in the world of scientific surgery, and why, after the lapse of over a century, we do well to review again what he has wrought, to appreciate anew the value of his contributions to the surgery to-day, and to give honour to whom honour is due

Note—In the preparation of this address I wish to make due acknowledgment of invaluable assistance received from many sources Besides those authors named in the text, free use has been made of the work of numerous other medical writers and historians, chiefly that of Toner, Williams, Thatcher, Packard, and Garrison, and addresses and other material from various sources both published and unpublished

THE BLIND IN SCOTLAND

THE Third Report of the Scottish Advisory Committee on the Welfare of the Blind states that there are 6639 blind persons in Scotland on the Central Register kept by the Board of Health, which is an increase of 585 since the issue of the last report in 1924 The Committee explains that this increase is probably mainly due to the greater interest taken in the case of the blind since Government grants were provided for voluntary agencies and responsibility was placed on local authorities Of the total number of registered blind persons, 359 are under 16 years of age, and 2835 are between the ages of 50 and 70 This latter group are eligible in respect of age for the blind pension, and the Committee estimates that 2000 are now in receipt of the pension There has been a gratifying decrease in the number of blind children both under 5 years of age and between the ages of 5 and 16 Employment is found in institutions for 925 blind persons, an increase of nearly 200 in the past two years 4164, or approximately 62 7 of the total number of registered blind in Scotland are unemployable The sum of £83,902 has been paid by the State in the past seven years towards the maintenance of the services provided by voluntary agencies for the welfare of the blind in Scotland

The report makes recommendations on various subjects, including technical training and marriage The Committee states that it is not satisfied that a total of 288 (or 43 4 per 1000) blind persons either certified or certifiable as mental defectives by any means represents the true position. It is also of opinion that "mentally defective blind children, unless of low grade, could be better dealt with and educated in schools for the blind among pupils of a higher grade of intelligence than themselves than in certified institutions for mental defectives"

Copies of the report may be had from H.M. Stationery Office, 120, George-street, Edinburgh (Price 7*d*, post free)

A PROFESSOR'S FAIRY TALES

Her Majesty the Queen has accepted the first copy of a limited Presentation Edition of "The Scarecrow and other Fairy Tales," by Dr Leonard Hill, F R S, numbered and signed by the author A copy was also accepted by the Queen of the Belgians during her recent visit to the National Institute for Medical Research, when, at Her Majesty's request, it was specially inscribed by the author "To Queen Elizabeth from Leonard Hill" The fairy tales were printed by the author at the request of his friends on the occasion of his sixtieth birthday, and a limited edition will be published shortly by the Actinic Press, Ltd

SPECIAL LECTURES AT MEDICAL SCHOOLS

IT has been brought to the notice of the Fellowship of Medicine that certain provincial medical schools and societies wish to supplement their ordinary programmes by inviting teachers connected with the Fellowship to give special lectures The Fellowship is prepared to accede to any such request, and in order that definite arrangements can be made would be glad to hear from those provincial schools which are desirous of procuring such lecturers

Physique of Policemen—With reference to a paragraph under this heading which appeared in THE LANCET of Feb 12th, the chief constable of Leeds informs us that the actual daily percentage of sickness for the whole of the Leeds City Police Force during the year 1925 was 3 27 The average number of days absence in respect of each man off duty owing to sickness during this period was 19.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 12TH, 1927

Notifications—The following cases of infectious disease were notified during the week—Small-pox, 479 (last week 547), scarlet fever, 1281, diphtheria, 900, enteric fever, 22, pneumonia, 3192 (last week 3198), puerperal fever, 51, puerperal pyrexia, 136, cerebro-spinal fever, 17, acute poliomyelitis, 10, encephalitis lethargica, 33, dysentery, 4; and ophthalmia neonatorum, 126 No case of cholera, plague, typhus fever, or polio-encephalitis was notified during the week

No further case of small-pox was notified from Portsmouth C B or from Essex, whilst two more were notified from Stockport C B The remaining cases were distributed, as last week, among the following counties Derbyshire, 23, Durham, 289, Lancashire, 3, Northumberland, 11, Nottinghamshire, 6, Yorkshire, 145

Deaths—A death from small-pox was reported from South Shields In the aggregate of great towns, including London, there was 1 (1) death from enteric fever, 47 (0) from measles, 6 (1) from scarlet fever, 129 (34) from whooping-cough, 46 (16) from diphtheria, 28 (3) from diarrhœa and enteritis under 2 years, and 759 (159) from influenza The figures in parentheses are those for London itself The influenzal deaths for the last six weeks have thus been 173, 326, 470, 725. 818, 759, while 990 is the figure notified for the week ended Feb 19th, the figure for London being 128

Hunterian Oration

ON THE VALUE OF
MODERN METHODS OF INVESTIGATION IN THE DIAGNOSIS AND TREATMENT OF
HÆMATURIA.

Delivered before the Hunterian Society on Feb. 28th, 1927,

BY W. GIRLING BALL, F.R.C.S. ENG.
PRESIDENT OF UROLOGICAL SECTION, ROYAL SOCIETY OF MEDICINE; SURGEON WITH CHARGE OF OUT-PATIENTS, ST. BARTHOLOMEW'S HOSPITAL.

[Mr. Girling Ball began his lecture with a brief historical review of the methods used in the diagnosis and treatment of urinary disorders. For many centuries, he said, these have been dealt with surgically. A method of removing vesical calculi was described by Celsus as in use amongst the Greeks and Romans. It became known as "cutting upon the gripe or with the lesser apparatus" and remained in vogue until early in the sixteenth century when Johannes de Romanis, of Cremona, is said to have devised the method of "cutting upon the staff or with the greater apparatus." At an early period a distinction was made between urogenital and other surgeons, and in 1634 a dispute arose at St. Thomas's Hospital about the appointment of a certain Mr. Cleeve, "who had been recommended to them for his skill in cutting for stones, in place of a certain Mr. Moby, who showed a singular lack of the same, in addition to the fact that he was rebellious against the King." The art was commonly practised by a special class of "cutters," the cases apparently only being dealt with by a surgeon when "there was money in it." John Douglas and Cheselden (1719) laid the foundation of the modern operation of suprapubic lithotomy known as the "high operation for the stone." Other landmarks in urogenital surgery were the first transperitoneal nephrectomy by Walcott (1871), after which the patient died on the fifteenth day, and the first successful lumbar nephrectomy in this country by Durham (1872). The date of the first removal of stone from the kidney is uncertain, but Dominique Marchettis performed a two-stage operation for this purpose in 1633, extracting the stone but leaving a permanent fistula. To Henry Morris (1881) is attributed the modern procedure. Litholapaxy was first done by Bigelow (1878); lithotrites were used before his time, but no artificial means of evacuating the fragments had been devised. In 1635 Covillard removed what is described as a growth—possibly part of the prostate—from the bladder. To Albarran must be given credit for surgery of vesical tumours, whilst the first tunnelling operation for prostatic enlargement was done by Hunter (1805). Mr Ball concluded his historical summary by speaking of the remarkable change in urogenital surgery which followed the discovery of X rays, the introduction of cystoscopy by Nitze, and the use of chemical and bacteriological methods. With modern equipment it is now possible in most cases to arrive at an almost accurate diagnosis of lesions of the urinary tract, and the symptom of hæmaturia affords an excellent example of the value of the methods now available. The lecturer continued as follows:—]

HÆMATURIA AS A SYMPTOM.

Fortunately, hæmaturia is a symptom which, although often neglected by the patient, is usually of sufficient prominence to lead him to call for medical aid. Unfortunately, however, he is not always stimulated by his adviser to undergo thorough investigation, but is treated on expectant lines in order to allay the hæmorrhage instead of discovering its cause.

This may be due to several reasons; one commonly met with is that the bleeding has ceased when he applies for advice to his doctor, who may not sufficiently appreciate that as a symptom it is invariably an indication of the existence of some serious pathological condition. This attitude can be partially understood, especially if the hæmaturia is limited to a single act of micturition, for it is not generally recognised that considerable information can be acquired in the period after the bleeding has ceased. Again, it may be difficult to convince the patient that a single bleeding demands an elaborate examination; but this is so common a feature of cases of intermittent hæmaturia, often of the painless type—due, shall we say, to a growth in the bladder—that an investigation should be insisted upon, thereby avoiding the loss of much valuable time in waiting for a subsequent attack.

Yet again, to take another example, if the hæmaturia still persists it too often happens that a full examination is postponed until after its subsidence, on the supposition that it cannot be carried out during this period. This, of course, is quite a fallacy; for the ideal period for defining the origin of the blood is while the bleeding continues. These are instances of an error in attitude which are quite commonly met with, and it is an endeavour to correct this attitude that has led me to choose this subject for my address. The advantage to be gained by adopting the use of adjuvant methods of investigation cannot be too strongly emphasised: the waiting for obvious physical signs, so often conspicuous by their absence in cases of hæmaturia, is only to be condemned. It is not my intention to attempt to deal with the diagnosis of hæmaturia, which may be a symptom of almost any disease of the urinary tract, but rather to detail the method of approaching a case of which this symptom is a prominent feature, illustrating these methods by their application to special diseases.

SOURCE OF THE BLOOD

Hæmaturia varies in degree and within very wide limits: the bleeding may be so small in quantity as to be only recognised by the microscope, or it may be so profuse as to give the urine a bright-red or a smoky appearance, with a heavy brown deposit on standing. It is obviously necessary, in the first place, to prove by microscopic examination that the discoloration is due to blood and not to some other pigment. Having proven that blood is present, and that one is not merely dealing with a case of hæmoglobinuria, &c., the initial effort must be directed to discovering the site of its origin. It is no doubt within the memory of most of us that the distinction between a renal hæmorrhage and one originating in the bladder was, and is even now, by some arrived at by the appearance of the urine passed; the dark coloration and intermixture of the blood with the urine in the one case, and its bright colour, often only at the end of micturition in the other, are often drawn attention to. A rough-and-ready method of distinction it may be, but it should not be recognised as a means of differentiating the site of a lesion, otherwise a wrong conclusion will often be drawn. Even a three-glass test is often inaccurate. The sudden clearance of bleeding after washing out the bladder suggests a renal origin, whereas a persistence of it indicates a vesical lesion. The passage of clots of blood in the form of ureteric casts must be suggestive of a renal bleeding. Examination for the presence of some general constitutional disease must naturally receive adequate attention before concluding that the hæmorrhage is the result of a local lesion. Evidence of renal inefficiency, the presence of arterial disease, cardiac lesions, hæmophilia, scurvy, &c., may be found; but here, again, it must be remembered that evidence of the existence of such general conditions does not necessarily mean that they are responsible for the hæmaturia. This point could not be better illustrated than by the following record:—

Some years ago I was asked to cystoscope a man of [illegible] years of age who had for many years been treated by his physician for chronic renal disease The many attacks of painless hæmaturia which he experienced were regarded as being the result of this condition One day, however, he had a particularly severe hæmorrhage, which led his doctor to ask for a cystoscopic examination, which demonstrated the presence of a large villous tumour of the bladder, the removal of which caused the bleeding to cease

True, it is, that this man had chronic renal disease, but the hæmaturia was due to the growth.

In diseases of the urinary tract itself, localising symptoms frequently indicate the site of origin of the bleeding, but even such must be accepted only with the greatest discrimination, for although they suggest that the bladder is the site of the disease, the kidney may, in reality, be the site of its primary focus, the bladder lesion being only secondary to it, and vice versa A case recently under my care illustrates this point admirably :—

A man, aged 23 had all the symptoms of a vesical calculus, with great pain relieved by rest His frequent micturition was reduced from 18–6 acts during the 24 hours by putting him to bed The bright red blood which he passed disappeared immediately from the urine A cystoscopy, however, demonstrated a tuberculous ulceration around the ureteric orifice and the removal of the kidney on the affected side of the bladder confirmed the diagnosis of renal tuberculosis This man had never had a symptom which would localise his disease to the kidney, which was an old-standing condition

Let it not be thought that a record of the symptoms is to be discarded as useless ; far be it from me to make any such suggestion, for it is obvious that a great deal of information can be gained by the acquisition of an accurate history relative to the type of hæmaturia, its persistence, its frequency, its amount, and its relation to other symptoms The mode of onset of the hæmaturia is often suggestive of its cause ; its accompaniment with pyuria and persistently increased frequency of micturition points to tuberculosis , a sudden profuse painless hæmaturia indicates the presence of a growth , the association with the symptoms of pain of a certain definite type will often point to the site of the lesion, as in a case of calculus, and so forth These symptoms give indications, but they by no means enable us to be sure of the site of origin of the bleeding

THE NEED FOR IMMEDIATE INVESTIGATION

These remarks will serve to illustrate the necessity of defining as accurately as possible the site of the bleeding focus Let me go one step further. A physical examination of the urinary tract may define the presence of a renal tumour, for which the presence of a growth or some inflammatory disease may be responsible A nodule in the testicle may suggest the presence of tuberculosis disease of the urinary tract ; an enlargement of the prostate, discovered by rectal examination, may indicate an innocent or malignant growth of that organ , but many of these findings are only obvious in the later stages of the disease of which they are the evidence Surely, an attempt should be made to arrive at a diagnosis ere a tumour of the kidney is palpable, or a secondary focus from a tuberculous kidney appears in the testicle, and the opportunity for doing so is often available Hæmaturia is often the only sign and the first evidence of these conditions and may precede the major manifestations by many weeks or months It is to this period that we should direct our attention, and then the only means of obtaining the information required is by the use of the cystoscope

Cystoscopy during Hæmorrhage.

As already stated, it is very disappointing in practice to find that the impression still prevails that a cystoscopic examination cannot be carried out during the period of bleeding No doubt this results from the recollection of the experiences of those who remember the time when the performance of cystoscopy required the preliminary cleansing of the bladder through a catheter, thereby allowing an interval for the medium introduced into the bladder to become sufficiently turbid to prevent a proper view being obtained , but with the use of the modern catheterising cystoscope this difficulty is avoided Now, it is obviously a material advantage to make the examination during the period of bleeding , indeed, the loss of an opportunity of doing this may be of exceeding importance in prognosis If the source of hæmorrhage is in the bladder, the technique available enables one almost invariably to obtain a satisfactory view of the condition present, but even if this is not possible at the first investigation, it is at least presumptive evidence that the lesion is in the bladder and can be left for further investigation during a quiescent period, or dealt with as circumstances demand If, on the other hand, the blood is coming from one or other ureter, thereby proving that it or the kidney is the source of the hæmorrhage, the bladder can always be sufficiently cleansed to recognise this fact Unfortunately, the circumstances too often are not so favourable, for the case may only come under observation during the period after or between two attacks of hæmaturia It is true that bladder lesions, such as papillomata, carcinomata, tuberculous ulcerations, or enlargements of the prostate, can, during this period, still be readily diagnosed, and in the case of tuberculosis, or other chronic infections of the kidney, the recognition of characteristic lesions collected around one ureteric orifice will indicate which kidney is the original site of the disease Abnormal appearances of a ureteric orifice are useful guides of renal disease. But the real difficulty lies in defining the site of the lesion in the absence of hæmaturia or of an indicator in the bladder The natural tendency is to wait for a recurrence of the bleeding, especially if the ordinary physical signs give no indication of the presence of disease, but this is an incorrect attitude to adopt

Let us consider the case in which at the moment of investigation the urine shows no abnormality, allowing that the same procedure would be adopted if the circumstances permitted, during a period of bleeding.

PRELIMINARY RADIOGRAPHY

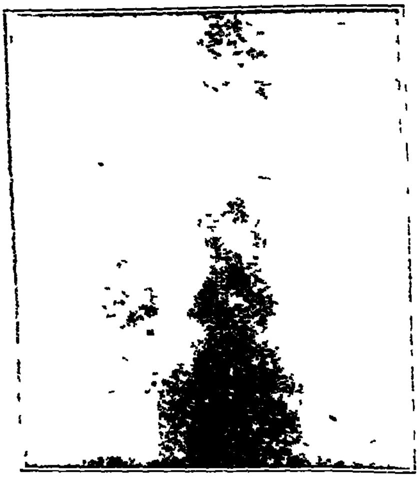
The assistance of the radiographer is first sought ; even in the absence of other symptoms, the exclusion or demonstration of a calculus, or any other abnormality capable of casting a shadow is essential Attention need hardly be drawn to the necessity of a proper preliminary treatment of the patient before radiographic examinations are made, especially with reference to the cleansing of the bowel , by this means shadows which may be caused by foreign bodies in that tract are excluded The close cooperation between the surgeon and the radiographer is of primary importance

Photographs of the whole of the urinary tract should be taken, no matter which portion is suggested by the symptoms as being the site of the lesion The identification of a true renal, ureteric, or vesical calculus is, as a rule, beyond doubt , but occasionally difficulty arises and misinterpretation of the findings results in improper methods of treatment It often happens, for example, that shadows are demonstrated whose mere association with an attack of hæmaturia suggests the presence of a calculus, whereas the physical characters of the shadow do not fit in with those usually expected of it To avoid a misinterpretation of these appearances the greatest care must be taken, and it is here that the cooperation mentioned is of the greatest value Take the case of a patient who has a single large shadow in the right hypochondrium, demonstrated in a picture taken in the antero-posterior axis as lying exactly over the renal area, but which has the ringed outline so characteristic of a gall-stone Gall-stones of this type can usually be recognised, but their association with hæmaturia naturally biases an opinion in favour of a renal calculus I have actually seen such a case in which the surgeon explored for a renal stone on this misapprehension, and only the failure to find it led him to explore the gall-bladder and remove a gall-stone

The taking of pictures in a lateral combined with the antero-posterior axis will avoid mistakes of this kind by showing the relationship of the shadow to the abdominal wall, if not actually to the kidney itself; or pictures may be taken stereoscopically. In the case of large stones, if they can be seen, the screen examination will serve the same purpose, and the mobility of the shadow, in relation to the viscus suspected of containing it, defined.

Foreign material in the appendix and calcareous lymphatic glands lying along the course of the ureter or in the mesentery are frequent causes of error, although, as a rule, their radiographic appearances are usually sufficiently characteristic to distinguish them. These shadows are usually small, but may be considerable in size, and even simulate the appearances of calculi. (Fig. 1.) They are usually situated in the right iliac fossa, but may be found in almost any position in the abdomen, even as high as the renal area. From their physical characters, radiography may be quite sufficient to define their nature. Apart from their appearance, manipulation of the abdomen while the patient is being X rayed, or even a change of position, may give a degree of mobility to the shadow which would be quite impossible with a calculus within the urinary passages. This finding naturally conduces to setting aside the diagnosis that the calcareous gland is responsible for the hæmaturia. This may be true, but on the other hand, it must be remembered that although this particular gland may not be related to the ureter, there may be some actively inflamed glands not showing calcareous degeneration more intimately attached to it.

FIG. 1.



Mass of tuberculous glands shown by X rays associated with hæmaturia and resembling calculi

Again, pelvic phleboliths are commonly demonstrated by the radiographer. A single shadow associated with hæmaturia naturally suggests the presence of a stone; where there are many such shadows, one of them can often be picked out as having different characters from the rest, and be regarded as a stone fragment.

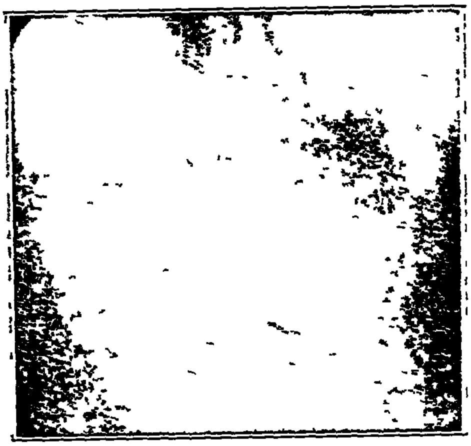
It is thus evident that in a case of hæmaturia ordinary radiographic methods may be sufficient; but on the other hand they may fail to give a certain diagnosis of a calculus. Moreover they may fail to demonstrate any shadow at all. Under both these circumstances further investigations are required unless another attack of hæmaturia is awaited, which, as already stated, if possible is to be avoided.

DIFFERENTIAL DIAGNOSIS OF RENAL CALCULI.

Let us first take the case in which the shadow is demonstrated but of the nature of which there is doubt. The simplest addition to the radiographic investigation consists in the passage of a ureteric bougie composed of material opaque to the X rays. (Fig. 2.) This will define the connexion of the shadow with the course of the ureter or the renal pelvis, especially if a stereoscopic picture is taken.

The shadow of a stone within the lumen of the ureter may be of sufficient size to block the passage of the bougie altogether, and all doubt is dissolved. But this may not be the case: the bougie may pass and unless the shadow is displaced—thereby indicating the presence of a stone—this will not necessarily exclude a calcareous gland adherent to the walls of the ureter. A gland, by its adhesion, may so alter the position of the ureter and prevent the passage of a bougie, but this is not common. Under these circumstances some opaque fluid, such as sodium bromide, is passed into the ureter through a ureteric catheter, causing distension of it and of the renal pelvis. (Fig. 3.) This will mask a shadow in the renal pelvis or within the ureter; moreover, it will demonstrate any secondary changes of either, such as stricture of the former or dilatation of the latter. Yet, again, it will clearly demonstrate the external relationship of any shadow caused by lesions outside the tract: furthermore, its distance from, or close attachment to, the ureter will indicate the possibility of its being the cause of the hæmaturia.

FIG. 2.



Relationship of opaque bougie to prostatic calculus.

FIG. 3

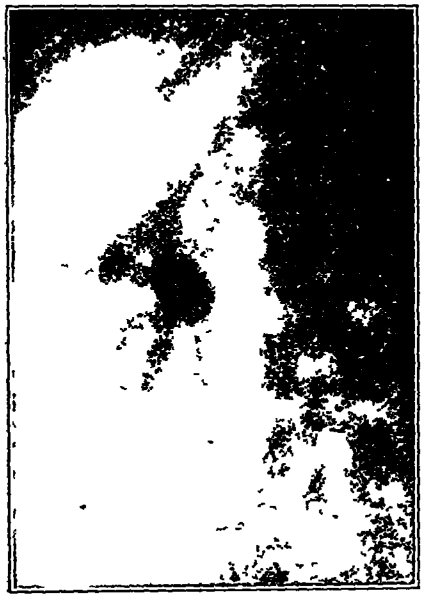
Pyelogram of normal pelvis showing external relationship of shadow of tuberculous glands reported on as renal calculi owing to association with typical symptoms of stone

These illustrations will suffice to indicate the use of those methods when a radiograph has demonstrated a shadow.

Calculi Translucent to X Rays.

Now let us turn to the case in which a stone is suspected as being the cause of the hæmaturia but in which it is not demonstrated by radiography. This is an uncommon event, as with the exception of the rare stone of pure uric acid formation calculi are usually demonstrable; cases are, however, met with from time to time in which the calculus [illegible] present, has not been discovered even after repeated radiographic examinations Renal stones lie within the pelvis or in one of its calyces, and quite early in the course of the symptoms, for which they are responsible, cause a distension of the calyces without altering the shape of the pelvis, except by their own shape; this ballooning of the calyces is a characteristic feature readily demonstrated by a pyelogram (Fig 4) I have on at least two occasions removed a renal stone, the existence of which was only recognised by this appearance

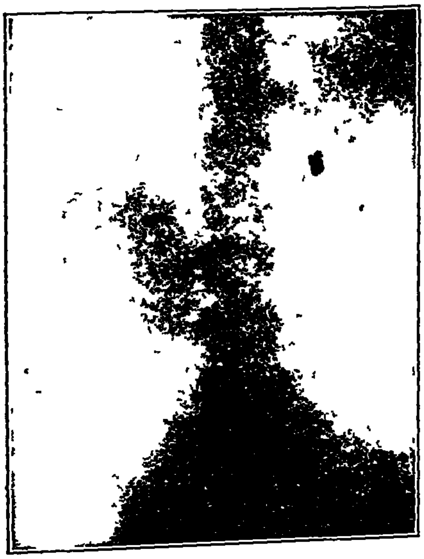
FIG 4.



Typical pyelogram of early calculus hydronephrosis

This observation is of some importance, for the pyelographic shadow, due to an obstruction of the ureter or renal pelvis by some extra tract lesion, demonstrates a distension of the renal pelvis without, in the early stages, affecting the calyces This deformity is associated with such conditions as movable kidney, congenital hydronephrosis, and hydronephrosis associated with abnormal renal vessels (Fig 5), and even strictures or deformities of the ureter due to the adhesion of calcareous lymphatic glands or adherent appendices The symptoms produced by these conditions may very closely simulate those of a calculus, even to the production of an attack of hæmaturia, presumably due to congestion of the renal tissue beneath the pelvic mucosa Thus it is seen that a pyelographic examination may be, apart from an exploratory operation, the only means of distinguishing such conditions

FIG 5.



Typical early hydronephrosis associated with abnormal renal artery

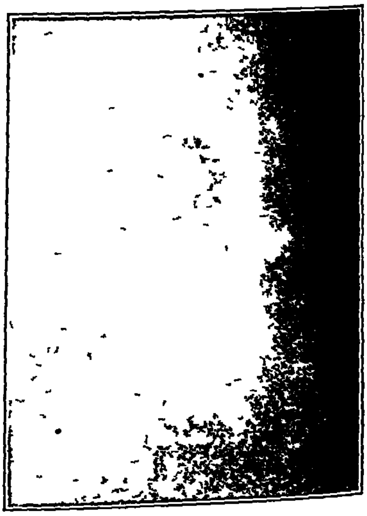
Before leaving the question of stone, it is desirable to emphasise the fact that where multiple calculi are present a radiograph does not necessarily show up the whole number present I myself have removed 13 stones from a renal pelvis which showed the existence of 11 on radiographic examination and subsequently, after nephrolithotomy, demonstrated the presence of a further 12 Misinterpretation of this kind has to be looked for and may be unavoidable A distension of the renal pelvis with fluid, which need not for this purpose be opaque to X rays, may break up a collected mass of small calculi and demonstrate their multiplicity and by rearrangement bring into view many that were not previously seen.

This examination was used with some satisfaction on one occasion when multiple shadows shown by the X rays were thought to be due to calcareous glands Distension of the renal pelvis with sodium bromide showed a typical calculus hydronephrosis When the fluid was run off a second picture showed that the fluid had split up the shadows into still further fragments, thereby confirming the diagnosis.

NEOPLASMS OF THE KIDNEY.

Hæmaturia is often the only symptom and sign of renal growths The bleeding, in contra-distinction to the conditions already mentioned, is often sufficiently profuse and persistent to cause a rapid onset of a secondary anæmia This is suggestive of the presence of a growth especially if the bleeding is seen to arise from one ureteric orifice With large growths, and in the later stages, simple radiographic examinations may demonstrate a big kidney. In the absence of bleeding, however, the question naturally arises as to whether pyelography will enable us to recognise the presence of a growth in its early stages Sometimes a diagnosis can be accurately made by this means; it may be necessary to investigate both kidneys if there are no other symptoms suggesting which is at fault Growths of the renal parenchyma have, even in the early stage, a tendency to bulge into the renal pelvis rather than to extrude from the surface of the kidney. In this way they splay out and elongate the calyces in a characteristic Y-shaped formation (Fig 6)

FIG 6



Typical pyelogram associated with growth of the renal parenchyma.

In the later stages growths of the renal pelvis, which are rarely seen, likewise tend to fill up the pelvis and thus prevent the introduction of any fluid into its cavity. In the earlier stages an irregular filling defect is suggestive of a papilliferous growth of that structure Sometimes such growths are associated with papillomatous growths in the bladder, which can be observed cystoscopically A unilateral renal hæmaturia seen to be coming from a ureteric orifice, in the neighbourhood of which is a villous tumour, should suggest that this is secondary to a similar condition in the pelvis of the kidney.

INFECTIONS OF THE URINARY TRACT

So far we have discussed cases in which, apart from containing blood, the urine shows no abnormality and during periods of intermission there has been no unusual constituent to suggest the presence of a lesion There are other cases, however in which, with the disappearance of the bleeding, abnormal substances remain Pyuria for example, may be found This, obviously, may be due to any of the conditions already described, and the same methods of investigation are called for, but in addition, the bacteriologist becomes a powerful ally; the isolation of the bacteria of infection will often give important information

In the first place, the nature of the micro-organism may be indicative of the type of lesion in the kidney: it may indicate that it is secondary to a primary focus in some other part of the body, the existence of which was hitherto unsuspected. The finding of the *Staphylococcus pyogenes aureus*, for example, may be evidence of an infarct in the kidney secondary to a boil on the neck; whilst typhoid infections of the urinary tract are not uncommon complications of enteric fever On the other hand, by its specific nature in the case of a primary lesion of the kidney, it may indicate the exact nature of that lesion The finding of the tubercle bacillus after one or more examinations or after inoculation of an animal, with a centrifugalised deposit of the urine, is an illustration of this type; even if the bacilli are not found, a sterile urine should lead to a suspicion of their presence.

Tuberculosis

Such findings as these are important but the problem of discovering the source of the bacteria is the same In this connexion tuberculosis affords an excellent example A bilateral disease is not amenable to surgical treatment, a unilateral infection is a satisfactory condition to deal with Is it possible, therefore, to differentiate between these two? A cystoscopic examination is the most useful aid in our possession, as it may demonstrate areas of congestion, tubercles, ulcers œdema, dragging upwards of the orifice or rigidity of the margins of one ureter, thus indicating which kidney is the site of the primary focus of infection.

Interpretation of the view obtained may be difficult, for if a considerable area of the bladder is involved, both ureteric orifices may be included in the tuberculous cystitis This naturally leads to the inference that the disease is involving both kidneys It must be remembered however, that this is not necessarily the case A period of rest may so alter the appearance seen that a re-examination at a later date may show that a suspected bilateral infection is really limited to one kidney The finding of these lesions is of the greatest assistance in diagnosis, but they may not be present The occasion sometimes arises when the bacilli are found in the urine and there is no indication which kidney is involved. There may be no localising signs indicating which is the seat of disease, for quite commonly a kidney may be considerably destroyed by tuberculosis without giving any evidence that it is affected; this is supported by the frequency with which a case of tuberculous nephritis fails to come under observation prior to the onset of vesical symptoms Catheterisation of the ureters may give the necessary proof; the presence of purulent sterile urine collected from one side and not from the other may serve as an indicator; again, by a lucky chance, bacilli may be isolated from one such specimen and not from the other

Radiography may demonstrate caseous or calcareous deposits Pyelography may be tried, although it is not a particularly desirable condition in which to use this method of investigation: the rupture of a cortical abscess into the renal pelvis may demonstrate an irregularly shaped calyx or an irregular margin to the renal pelvis which may be sufficiently suggestive. If these investigations fail, the use of the tests of renal function may be applied to each kidney. Apart however from the ordinary chemical and bacteriological investigations, as a means of differentiating the function of the two kidneys little value can be attached to these findings The dye test it is true may indicate from time to time the presence of a gross lesion in one kidney, but as a means of diagnosis its value is uncertain It is in this attitude that they must be utilised In the absence of these findings, as a rule it is necessary to await events The diagnosis of the site of a tuberculous focus in the urinary tract, in the absence of macroscopic lesions, which can be seen, may thus be very difficult.

Non-tuberculous Infection of the Kidney

Lastly, let me add a few remarks with regard to the diagnosis of renal infections other than tuberculosis Acute infections of the urinary tract, apart from those associated with other pathological conditions are so commonly met with that the symptoms they produce enable their easy recognition. Little, however, is known of their exact origin. Sometimes, especially in severe acute infections there is evidence of involvement of the kidney; in these cases, the vesical symptoms are the most evident; and yet again there may be few symptoms, except fever, the presence of a urinary infection only being discovered by an examination of the urine.

It is generally presumed that these infections are of hæmatogenous origin the initial foci being found in the bowel, the tonsil, the air passages or elsewhere. A complete recovery from such an infection is not uncommonly seen, but there is a tendency for it to persist or become recurrent, which naturally raises the question whether there is not some factor in the urinary tract itself which predisposes to these sequelæ

A bilateral infection is presumably frank evidence of a generalised infection. Before assuming that it is of this nature however, it is necessary to demonstrate that there is no obstructive lesion below the entrance of the ureters into the bladder, either within the tract or in the pelvis—e g., an enlarged prostate, a urethral stricture, fibroids the pregnant uterus or inflamed tubes A unilateral infection, although it may be of like origin, might reasonably be expected to depend on some localising factor It is surprising how often it is possible to demonstrate the presence of some obstructive lesion by the methods of investigation already enumerated Obvious illustrations of these are the cases of early hydronephrosis associated with a movable kidney or an abnormal renal vessel.

This being so it is a necessary corollary that in such cases abnormalities should be sought for. In dealing with a case of urinary infection it is important to discover if possible, the presence of some associated factor within the tract itself, for it is difficult to believe that an infection can persist in a normal urinary tract This argument may be carried still further to prove that in some cases structures outside the tract—for example, the appendix and the large bowel—may involve it in the process of their diseases and cause the maintenance of an infection I have recently recorded a group of this type, included amongst which is the following case which serves as an excellent illustration of this point, and shows the necessity for the procedures here advocated in connexion with urinary infections:—

A woman aged 46, suffering from a sufficiently severe hæmaturia to cause a marked secondary anæmia and extending over a period of six weeks was passed through the ordinary methods of investigation with negative results, beyond the fact that the blood was seen to be derived from the right ureter A pyelogram demonstrated the presence of a considerable early hydronephrosis, the cause of which was not obvious, except, possibly, a kink at the uretero-pelvic junction The urine at this time was sterile. A lumbar exploration failed to demonstrate anything abnormal except the conditions above mentioned However, the hæmorrhage had been so severe that a nephrectomy was performed Imagine my chagrin to find that the hæmaturia persisted and did so until three months later when the patient returned with infected water and a typical attack of acute appendicitis With the removal of the appendix the hæmaturia and the infection ceased

This case serves to illustrate that one must not even be content to examine only the urinary passages, but must carry out investigations of those structures which lie in its neighbourhood

The routine procedure so commonly adopted in the treatment of urinary infections—namely, the institution of free diuresis, the use of urinary and alimentary antiseptics, and the introduction of vaccine-therapy—are, to my mind, to be deprecated until a thorough search for the presence of some factor predisposing to the incidence, the recurrence or the persistence of such infection has been sought for Of course, these investigations will from time to time fail to elucidate such a cause, which may remain undiscovered until some exploration is made or some incidental condition, such as occurred in this case, accidentally defines its presence, the finding of such a lesion may save our patients years of useless treatment

Essential or Idiopathic Hæmaturia.

There are many other causes of hæmaturia which might be discussed, but they need not be referred to here, as the mode on investigation is common to them all The aid of the cystoscopist, the radiographer, the pathologist and the chemist may all be necessary to our service, thereby demonstrating the necessity of good team work ; with this tract the results show how valuable this collaboration may be, and how far it is possible to be almost accurate in the diagnosis of a given case Still, even with all these means of diagnosis, there remains one group which must be mentioned, for which no cause for the bleeding is discoverable, to this the term "essential" or "idiopathic" hæmaturia is applied

This used to be a fairly common diagnosis, but owing to our better equipment it is fast disappearing, as some responsible cause can be defined in many cases which hitherto would have been so grouped ; one of the causes mentioned above was found after removal of the kidney, chronic nephritis was shown to be present in others, although clinically the patients showed no evidence of that condition. But still, occasionally, kidneys bleed and are removed which show no discoverable lesion even after the most careful microscopic investigation, and more surprising still, the source of the bleeding often is not found In some instances, minute nævi have been demonstrated of so small a size as to be missed by one trained observer and found by another, probably this is the explanation of others Practically, it is not possible to recognise such lesions before the removal of the kidney, nor will it be possible until some genius invents an instrument through which the interior of the pelvis can be observed

Improved Standard of Treatment

The introduction of all valuable methods of investigation must necessarily lead to an improvement in our methods of treatment It is indeed interesting to compare the ease and certainty with which a stone of the kidney can be demonstrated and removed by pyelotomy with the problematical finding of our forefathers, amongst whose equipment was found a knitting needle with which to prod the kidney tissue to demonstrate the existence of the calculus, to be followed by an incision through the so-called bloodless line, inevitably causing severe damage to the kidney, often serious hæmorrhage, and possibly a subsequent nephrectomy

It is now possible to demonstrate by pyelography the degree of damage of the renal tissue caused by the stone, so that the surgeon, prior to the operation, may know whether or not a nephrectomy will be required In the case of a very small stone, where he may mistrust his ability to find it, he can actually demonstrate by the same investigation the site of the calyx containing it The introduction of the tests for renal function in cases of enlargement of the prostate, thereby demonstrating the damage done to the renal tissues by obstruction, has led us to select only such cases for an immediate prostatectomy in which the function of the kidneys can reasonably be expected to withstand the serious effects of the operation and to deal with the remainder by a two-stage operation It has also taught us to be cautious in recognising the presence of two kidneys and to avoid the removal of the only or the only functioning kidney The demonstration of an early hydronephrosis has enabled us to carry out such procedures as will prevent the more complete destruction of the renal tissue which would otherwise have been inevitable, and the formation of those enormous cysts which might be mistaken for a similar lesion associated with the ovary. Pyelographic examinations have also enabled us to recognise the existence of a malignant growth of the kidney at a stage with a reasonable chance of complete eradication, which would otherwise not have been demonstrated except by an exploratory operation or by the finding of a large tumour beyond the hope of removal

These are some of the advantages in which the modern methods of diagnosis of genito-urinary conditions have led to more efficacious means of treatment ; but perhaps of still greater interest, certainly to the public, has been the introduction of methods of treatment by intravesical procedure, thereby avoiding cutting operations which are hated by man and lead to the loss of much valuable time, which is bound to be of an important consideration to the worker It needs only to mention the removal of vesical stones by lithotrity, the destruction of villous tumours of the bladder by fulguration, the encouragement of the expulsion of ureteric calculi by the passage of bougies or the introduction of oil and drugs through a ureteric catheter, the destruction of portions of the prostate by diathermy in cases not suitable for the major operation or where there is some special indication pointing out its advantage

Surely, the advances which have been made and those within such a short period of time would have been after the heart of the great master whose name this lecture commemorates

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Hunterian Lecture

ON

RECENT ADVANCES IN

THE SURGERY OF HERNIA.

Delivered before the Royal College of Surgeons of England on Feb 16th, 1927,

By ERNEST M COWELL, D S O, M D Lond,
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The surgical history of hernia dates back to time immemorial, the subject being referred to in the earliest writings of our craft There have been three main periods, according to the method of operative treatment employed

1 *The Age of Herniotomy*, when the sac was excised and ligatured Celsus and Galen, in the first and second centuries A D, described and practised this procedure At this time hernia was thought to be due to a "rupture" of the peritoneum Paulus Aegineta, of Alexandria, in the seventh century A D, taught that the condition was not due to a sudden giving way of the peritoneum, but rather to a gradual distension and protuberance Itinerant herniotomists flourished in the middle ages, men who operated on patients in large numbers and then moved on to the next town

Pierre Franco and Ambroise Paré in the sixteenth century contributed to our knowledge of the condition In the seventeenth and eighteenth centuries, when the study of anatomy was being carried out by many skilful observers, several new types of hernia were described, and an extensive literature was compiled by such men as Littre, Petit, de Gimbernat, Richter, &c Early in the nineteenth century Scarpa in Italy and Sir Astley Cooper in this country published beautiful atlases of drawings of their hernial dissections.

With the advent of Lister's discoveries surgery received an immense impetus, and open operation became safer and more popular. Annandale in 1876 first operated on femoral hernia by the inguinal route. The number of herniotomy operations multiplied so that in 1884 Prof. Sir A. E. Barker was able to write a paper on 35 Operations for the Radical Cure of Inguinal Hernia by Original Methods.

2. *Second Period: Herniorrhaphy.*—The second period commenced with the description by Bassini (1890) and Halsted at about the same time, of a more elaborate procedure for the surgical cure of inguinal hernia. Many modifications and elaborations of these methods have since been described. Anterior and posterior imbrication of the external oblique aponeurosis (E. Wyllis Andrews, Edmund Andrews, Stetten and others), plication of the fascia transversalis (Pitzman), and other methods of reinforcing the coverings of the canal by suture are still popular, especially in America. In this group of herniorrhaphies may be included the filigree method of Bartlett, popularised in this country by Laurie McGavin. In this type of operation however, in spite of their complicated technique, the rate of recurrence has remained too high.

3. *Third Period: Hernioplasty.*—Kirschner in 1910 pointed out the fact that free fascial grafts could be successfully employed and he used the method in one case of inguinal hernia. Lewis, Dean, and Davis in 1911 and 1914 published similar observations. It was not till 1921, however, that Gallie and Lemesurier in Canada, reintroduced the subject. These authors employed strips of fascia lata from the thigh and used them to reinforce the weak posterior wall of the inguinal canal. Pedunculated strips of external oblique aponeurosis were used in a similar way by McArthur in 1901, McEachern, and also Adair in 1924, and Wainschenker (1923, published in 1925). In my own method pedunculated autogenous flaps of the external oblique aponeurosis are employed as will be shown later.

The results of hernioplasty are extraordinarily good. In the present series of 201 hernias no patient has been refused operation on account of age or general condition. Careful follow-up methods have so far revealed a single case of recurrence.

CLINICAL OUTLINES.

I do not propose to enter into an extended discussion of the signs and symptoms of hernia. In the earliest stages the patient complains of symptoms which are due to reflexes from the peritoneum concerned. Thus dyspepsia, epigastric uneasiness, umbilical pain or backache may be met with. Later the local bulging is noticed. The symptoms are usually slight in the case of femoral hernia. A pain which radiates down the inner side of the thigh should lead the observer to suspect an obturator hernia.

On examination of the hernial region swellings may appear, and lateral inspection will reveal whether the inguinal canal is filled or not. The relation of the swelling to the pubic spine must in all cases be accurately determined. Two early physical signs of inguinal hernia are given by Watson: (*a*) Cosens's sign, the alert rectus. The rectus muscle on the affected side is found to be tenser than on the other. (*b*) Watson's sign—painful subcutaneous ring. With the patient erect and head up, pressure over the external rings will cause complaint of pain on the weak side. Lastly, the grip or shutter action of the internal oblique and transversalis muscles should be determined, as pointed out by Sir Arthur Keith.

In the femoral variety of hernia the swelling first appears below Poupart's ligament external to the pubic spine, and thence may extend upwards over the ligament, downwards into the thigh, or outwards along Poupart's ligament.

ANATOMY.

In order to study the blood-supply of the hernial region and to determine the vascularity of the aponeurosis of the external oblique, block dissections were made, injected through the external iliac artery with lead oxide suspension, and then radiographed. In the resulting photograph (Fig. 1) it will be seen that the external oblique aponeurosis itself contains but very few blood-vessels. The fascia which was reflected from its surface and which lies curled up contains a fine network of nutrient vessels. This would at first sight appear to be an important point in the surgery of this region and an argument against cleaning the aponeurosis before commencing plastic manipulations. However, as will be shown later, cleaned aponeurosis maintains its nutrition through its lymph-supply, and unites better when freed from overlying fascia and areolar tissue.

When the inguinal canal is exposed the cord having been dislocated and held downwards and outwards, the thickened edge of the transversalis fascia at the abdominal ring comes into view. This edge may be freed and defined by dividing the infundibuliform fascia by blunt dissection. Above and below, the limits of the ring may be determined. The upper border of the ring is usually covered by the muscles, and the lower when retracted exposes the epigastric vessels which should be actually located in all operations for inguinal hernia. The inner margin of the ring is free and will readily allow a finger to be passed into the properitoneal space. The outer margin should be displayed with care, otherwise the spermatic vessels or vas will be damaged. Note the interval between these structures. Torek takes advantage of this space, and in restoring the ring after excision of the sac applies his stitches to unite the opposite margins of the ring between these structures.

Below the epigastric vessels lies a weak or undefended space, the inner wall of the canal, and here a bulge may be noticed even where no direct sac actually exists. This is a common site for recurrence.

All students of anatomy are familiar with the peritoneal fossæ of the hernial regions. A fact which may have surgical significance and which has, I believe, been hitherto overlooked is that the two little fossæ, the fovea femoralis and the fovea over the obturator canal, lie at the apex of a larger funnel-shaped fossa with the following four boundaries: in front Poupart's ligament, externally the external iliac vessels, internally the obliterated hypogastric (umbilical) artery, and behind the vas or round ligament. This fossa may be termed the quadrilateral fossa.

FREQUENCY OF HERNIAL SACS.

I believe that either an actual or potential oblique peritoneal sac of varying size exists in all subjects. This is shown in Fig. 2, where the cord has been dislocated and is held over to the outer side. On dividing the infundibuliform fascia a white semicircular outline can always be seen which is the edge of a potential sac. It is not unlike a rising moon in appearance. I have never failed to demonstrate this in post-mortem examinations, and in all my operation cases where an actual hernia was present on one side a potential sac was always found on the other side when it was looked for. When opened the sac always admits at least one finger. In several of the sacs I have found adherent omentum, although there was no history of hernia. This potential sac is an incompletely obliterated processus vaginalis. The usual description of the normal anatomical obliteration of the process that has been accepted up till now does not take into consideration the persistent patency of the proximal half inch or more.

If these observations are accepted it follows that all oblique inguinal hernias are of congenital origin. A study of oblique sacs removed produces further evidence in support of this view, since areas of closure in the processus vaginalis can be demonstrated at all levels. Specimens taken from operation cases may be shown with: (*a*) a completely patent processus, passages, but must carry out investigations of those structures which lie in its neighbourhood

The routine procedure so commonly adopted in the treatment of urinary infections—namely, the institution of free diuresis, the use of urinary and alimentary antiseptics, and the introduction of vaccine-therapy—are, to my mind, to be deprecated until a thorough search for the presence of some factor predisposing to the incidence, the recurrence or the persistence of such infection has been sought for Of course, these investigations will from time to time fail to elucidate such a cause, which may remain undiscovered until some exploration is made or some incidental condition, such as occurred in this case, accidentally defines its presence, the finding of such a lesion may save our patients years of useless treatment

Essential or Idiopathic Hæmaturia.

There are many other causes of hæmaturia which might be discussed, but they need not be referred to here, as the mode on investigation is common to them all The aid of the cystoscopist, the radiographer, the pathologist and the chemist may all be necessary to our service, thereby demonstrating the necessity of good team work, with this tract the results show how valuable this collaboration may be, and how far it is possible to be almost accurate in the diagnosis of a given case Still, even with all these means of diagnosis, there remains one group which must be mentioned, for which no cause for the bleeding is discoverable; to this the term "essential" or "idiopathic" hæmaturia is applied

This used to be a fairly common diagnosis, but owing to our better equipment it is fast disappearing, as some responsible cause can be defined in many cases which hitherto would have been so grouped; one of the causes mentioned above was found after removal of the kidney, chronic nephritis was shown to be present in others, although clinically the patients showed no evidence of that condition But still, occasionally, kidneys bleed and are removed which show no discoverable lesion even after the most careful microscopic investigation, and more surprising still, the source of the bleeding often is not found In some instances, minute nævi have been demonstrated of so small a size as to be missed by one trained observer and found by another, probably this is the explanation of others Practically, it is not possible to recognise such lesions before the removal of the kidney, nor will it be possible until some genius invents an instrument through which the interior of the pelvis can be observed

Improved Standard of Treatment

The introduction of all valuable methods of investigation must necessarily lead to an improvement in our methods of treatment It is indeed interesting to compare the ease and certainty with which a stone of the kidney can be demonstrated and removed by pyelotomy with the problematical finding of our forefathers, amongst whose equipment was found a knitting needle with which to prod the kidney tissue to demonstrate the existence of the calculus, to be followed by an incision through the so-called bloodless line, inevitably causing severe damage to the kidney, often serious hæmorrhage, and possibly a subsequent nephrectomy

It is now possible to demonstrate by pyelography the degree of damage of the renal tissue caused by the stone, so that the surgeon, prior to the operation, may know whether or not a nephrectomy will be required In the case of a very small stone, where he may mistrust his ability to find it, he can actually demonstrate by the same investigation the site of the calyx containing it The introduction of the tests for renal function in cases of enlargement of the prostate, thereby demonstrating the damage done to the renal tissues by obstruction, has led us to select only such cases for an immediate prostatectomy in which the function of the kidneys can reasonably be expected to withstand the serious effects of the operation and to deal with the remainder by a two-stage operation. It has also taught us to be cautious in recognising the presence of two kidneys and to avoid the removal of the only or the only functioning kidney The demonstration of an early hydronephrosis has enabled us to carry out such procedures as will prevent the more complete destruction of the renal tissue which would otherwise have been inevitable, and the formation of those enormous cysts which might be mistaken for a similar lesion associated with the ovary Pyelographic examinations have also enabled us to recognise the existence of a malignant growth of the kidney at a stage with a reasonable chance of complete eradication, which would otherwise not have been demonstrated except by an exploratory operation or by the finding of a large tumour beyond the hope of removal

These are some of the advantages in which the modern methods of diagnosis of genito-urinary conditions have led to more efficacious means of treatment; but perhaps of still greater interest, certainly to the public, has been the introduction of methods of treatment by intravesical procedure, thereby avoiding cutting operations which are hated by man and lead to the loss of much valuable time, which is bound to be of an important consideration to the worker It needs only to mention the removal of vesical stones by lithotrity, the destruction of villous tumours of the bladder by fulguration, the encouragement of the expulsion of ureteric calculi by the passage of bougies or the introduction of oil and drugs through a ureteric catheter, the destruction of portions of the prostate by diathermy in cases not suitable for the major operation or where there is some special indication pointing out its advantage

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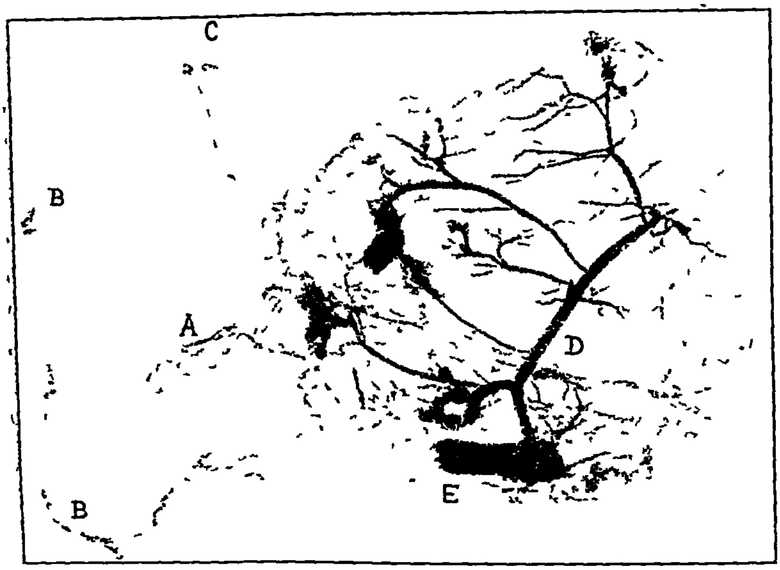
Pierre Franco and Ambroise Paré in the sixteenth century contributed to our knowledge of the condition In the seventeenth and eighteenth centuries, when the study of anatomy was being carried out by many skilful observers, several new types of hernia were described, and an extensive literature was compiled by such men as Littre, Petit, de Gimbernat, Richter, &c Early in the nineteenth century Scarpa in Italy proceeding a glistening fibrous band may appear running parallel to the epigastric vessels This is the obliterated hypogastric artery

Step 7—After careful inspection, to ensure that there are no adhesions or contents, the peritoneum is clamped by a succession of pressure forceps and is cut across The cut edges are united by thread and allowed to drop back

Step 8—The edges of the ring are closed and the thread with needle attached is left, in order to complete the suture of the flap later (A stitch)

Step 9—A flap of sufficient size to cover the undefended space without undue tension is cut from the cleaned inner part of the external oblique aponeurosis Below it is left with the internal pillar of the subcutaneous ring as its pedicle, and above it is made long enough to reach up to the abdominal ring It is usually about half an inch wide The outer ' slip" is next cut as long as possible ¼ to ½ in. in width, according to the thickness of the aponeurosis This is also left attached distally The "slip" is too short to work with comfortably and so is lengthened by being attached to a "loop thread" which carries the blunt-ended fascial needle

FIG 1



Injected hernial region, showing blood supply of external oblique A, cord B, reflected external aponeurosis C, fascia reflected from B D, epigastric artery E, iliac artery

Step 10—The flap is passed under the cord or round ligament and is stitched along its lower border to Poupart's ligament by means of the "slip" attached to the loop thread In order to make it fit snugly round the cord at its exit from the abdominal ring it is convenient in some cases to split the flap for half an inch or so The upper edge of the flap is now stitched to the transversalis fascia by means of the thread left for this purpose, and next to the aponeurotic surface of the conjoined tendon, or failing this, to the most convenient fascial structures

The remaining steps consist in suturing the oblique aponeurosis and closing the wound The operation usually takes about 25 minutes and both sides can be done by this method in an hour

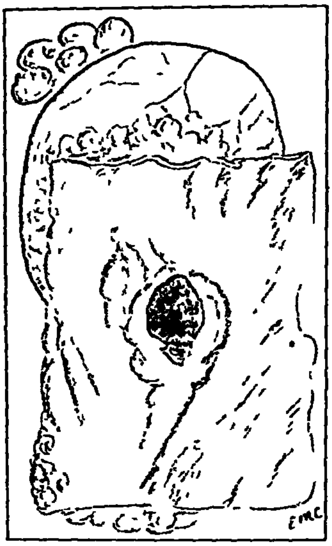
DIRECT INGUINAL HERNIA

Anatomy—A direct inguinal hernia is not so uncommon as was originally supposed It may occur in patients of all ages and is often bilateral As soon as the canal is opened and the cord or round ligament is lifted the spherical swelling of this sac comes into view, usually covered by vertical attenuated fibres derived from the conjoined tendon On division and retraction of the superimposed transversalis fascia the epigastric vessels are seen to course inwards above the sac Exposure of the root of the cord at the abdominal ring, by my method, will invariably display a small oblique sac This was pointed out by Hoguet and confirmed by Watson Below, the sac comes into relation with the bladder, and as the dissection of the slack peritoneum of this region proceeds the obliterated hypogastric artery is usually seen.

Morbid Anatomy—In a post-mortem specimen of an oblique-direct hernia (now in the Museum of the Royal College of Surgeons) it was possible in the fresh state to pull up the direct sac from beneath the vessels and convert the double hernia into one large oblique sac This is "Hoguet's manœuvre," and is an extremely important advance in the operative technique for this condition In Fig 4 I have shown this manipulation diagrammatically

The Operation—From these remarks it will be seen that the operative treatment of direct hernia need no longer present difficulties nor furnish such a high recurrence rate as at present—viz , up to 25 per cent The oblique hernia is found, the direct sac converted into one large oblique sac, and the operation completed by the author's usual flap hernioplasty In the 15 direct cases of the present series the results have all been satisfactory up to the present

FIG. 3.



Sac of femoral hernia

FEMORAL HERNIA

Anatomy—In considering the anatomy of the femoral hernia its close connexion with the inguinal region should be borne in mind In a dissection from the inguinal route the mouth of the sac commences behind Poupart's ligament The slack funnel-shaped peritoneal pouch above this is in intimate relation to the bladder and lies behind the fascia transversalis Externally in its fascial sheath lies the external iliac vein and behind the pubic ramus In the thigh the relations of a femoral sac are well known

Morbid Anatomy—A femoral sac is usually preceded by a portion of the properitoneal fat which is abundant in this situation This fat may be of considerable size and is probably a factor of ætiological importance Fig 3 shows a specimen illustrating the large amount of peritoneum that it is necessary to remove in the performance of an adequate operation, it may be contrasted with specimens obtained in the usual operations, when the sac is excised below Poupart's ligament There is some thickening of peritoneum round the mouth of the sac, but no " corns " or nodes are found as in the case of oblique inguinal sacs It is not uncommon for omentum to be adherent in the sac

Operation—The operation for femoral hernia should always be performed by the inguinal route The

the "congenital hydrocele"; (b) a tail-like processus, partial closure, (c) a fine fibrous cord attached to the usual potential sac.

Another condition which is evidence of the congenital origin of the sac and which occurred in 6 per cent of my cases is an encysted hydrocele of the cord Here the processus has undergone irregular obliteration, leaving an intermediate patent portion It is not uncommon to find this unobliterated portion without fluid contents, a potential encysted hydrocele of the cord In some cases there is hyperplasia of the processus vaginalis, with subsequent partial disappearance of a proximal portion of the peritoneal pouch and persistence of the vaginal portion with or without fluid contents This hernia with a potential vaginal hydrocele was described by Hey in 1764 as the "infantile type" When the hernial sac is accompanied by an actual hydrocele the condition is known as the encysted type of infantile hernia (Cooper)

The female analogue of Hey's or Cooper's type may occur Although a potential sac is so common it does not follow that hernia must develop As long as the "shutter" action of the muscles of the groin is maintained no oblique hernia will occur. This is an important fact in discussing the prevention of the condition

MORBID ANATOMY OF OBLIQUE INGUINAL HERNIA SACS

Examination of an adequately removed sac will demonstrate the large amount of slack peritoneum that may be removed The mouth of the sac from a boy 6 years old measured 7 cm, while in a young man of 23 years it was 9 cm in its longest diameter If the inner surface of the mouth of the sac be inspected, very often thickened rough areas may be seen, the corns of Villandré These rough areas may be seen in infants, and in elderly subjects may be calcified They correspond to the pressure area of the epigastric vessels

FASCIAL SURGERY

The work of Kirschner and others has already been mentioned In 1921 Gallie and Lemesurier began to publish the results of their experiments on fascial suture These observers found in studying cases operated on for recurrent inguinal hernia, where an operation of the Bassini type had been done, that in most cases no evidence of any previous muscle suture remained The same fact was also noted by Cudard and Jean in the following year A large series of experiments was carried out and the following conclusions arrived at (1) Edge-to-edge suture of fascial wounds is not strong, and is best when thread sutures are used (2) Overlapping does not add to the solidity of the scar (3) Cleaned fascial surfaces unite better than when areolar tissue is left between (4) Side-to-side suture of the undamaged conjoined tendon to Poupart's ligament never leads to permanent union (5) Pedunculated or free transplants of fascia and aponeurosis, if allowed an adequate supply of lymph, continue to live unchanged (6) Living fascial strips become rounded and are soon organised into fine tendons

In 1923 Seelig and Chouke published an important paper on a Fundamental Factor in the Recurrence of Inguinal Hernia They confirmed Gallie and Lemesurier's observations, and, basing their opinions on a large series of experiments, concluded that (1) normal muscle will not unite firmly with fascia or ligament, (2) fascia unites well with fascia, (3) a weak abdominal wall should be strengthened by a fascial method In 1924 Tinker and Sutton published similar results, and Adair, Eastman, and McEachern wrote on the surgery of fascial sutures Numerous surgical writers noted these experimental findings and the slogan "White to White" was taught In 1926, however, Koontz, repeating Seelig and Chouke's experiments, came to different conclusions He found that when "cleaned" or scarified muscle was sutured to "cleaned" fascia firm union resulted It was necessary, however, to prepare the surfaces very thoroughly and even to cut away a layer of muscle before suturing

From the practical point of view in hernia operations it is probable that in the majority of cases the conjoined tendon does not unite to Poupart's ligament To clean the surfaces as thoroughly as Koontz suggests is not practicable.

AN OPERATION FOR OBLIQUE INGUINAL HERNIA

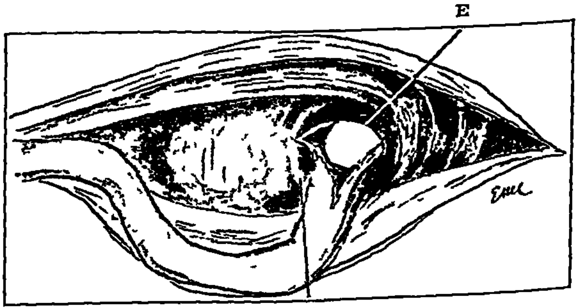
I have devised a form of hernioplasty which I have performed since January, 1925, in 125 cases, in 76 of which the operation was done on both sides—making a total of 201 flap operations

The operation may be described in the following 12 steps. 1 Hemi-semilunar incision 2 Division of external aponeurosis so as to allow of subsequent flap formation 3 Dislocation of cord or round ligament from canal, traction downwards 4 Definition of abdominal ring, commenced by division of inner part of infundibuliform fascia 5 Isolation of sac and separation of its base 6 Opening sac and pulling up slack peritoneum from below epigastric vessels 7 Excision and suture of mouth of sac 8 Closure of abdominal ring 9 Preparation of a pedicled flap from the inner portion of oblique aponeurosis and a smaller one ("slip") from the outer part 10 Suture of the lower border of the "flap" behind cord or round ligament by means of the "slip" to Poupart's ligament Above by a thread to aponeurotic or fascial tissue 11 Closure of external oblique aponeurosis by thread or free fascial sutures 12 Ligature of the vessels, suture of superficial fascia and skin

Step 1—In making the incision on the left side of the patient the operator's index-finger rests on the anterior superior iliac spine, his little finger on the pubic spine, and the remaining fingers are allowed to take up their natural position With the skin held tense the knife is swept round through a quarter of a circle from the little to the middle finger Vessels are picked up before division if possible and the incision deepened until the shining oblique fibres are seen In the case of a right-sided incision the position of the fingers is reversed The little finger rests on the iliac and the index on the pubic spine The incision is then made from the ring to the index-finger through a quarter of a circle

Step 2—As a rule the larger flap will be taken from the inner part of the oblique aponeurosis The incision to open the canal will therefore be made nearer to Poupart's ligament than in the ordinary operation Sufficient aponeurosis must be left on the outer side to form the pedicled strip used subsequently as a suture ("slip)" These flaps are not cut until later

FIG 2



Abdominal ring showing edge of transversus fascia A, "rising moon" potential oblique inguinal hernia appears E, epigastric artery beneath fascia

Steps 3 and 4—Holding the cord outwards, after dislocating it from its bed, gives the operator full access to the sac with the minimal disturbance to the cord and its coverings Division of the upper part of the infundibuliform fascia on its inner side enables a small sac to be found with great ease as already described

Step 5—A very important point is the thorough isolation of the base of the sac, by sweeping the finger round in the interval between peritoneum and transversalis fascia The epigastric vessels will be seen during this manœuvre The rest of the sac is usually easily isolated by gauze dissection

Step 6—The sac is opened on its inner side and a finger introduced The slack peritoneum is then drawn up from under the epigastric vessels until first the supravesical fat and then the bladder itself come into view During thi

Hopkins Hospital gave a recurrence rate of 5 6 per cent out of 816 oblique and 29 7 per cent. in 94 direct hernias

The time interval between date of operation and recurrence is interesting 98 6 per cent of recurrences showed themselves by the end of the second year Of these 90 per cent had occurred at the end of 18 months, 73 9 per cent at the end of 12 months, and 47 9 per cent within six months

The results of a series of 3000 hernia operations were reported in 1924 by B L Coley, of New York The author has published a full analysis of these statistics elsewhere In children the recurrence rate is nil In adults Coley gives 8 7 per cent and 4 4 per cent recurrences in males and females respectively in the case of oblique inguinal hernia, while in the direct variety it is 16 4 and 50 per cent In femoral hernia in 80 cases the recurrence rate was 9 per cent in males and 14 per cent in females In 47 cases of recurrent inguinal hernia a Bassini or modified Bassini type of operation had been performed in each case

With regard to fascial surgery and hernioplasty, sufficient time has not yet elapsed nor have surgeons performed a large enough series of operations upon which to base a final judgment Gallie and Lemesurier quoted a series of 60 cases in 1923 without recurrence, McArthur in the same year 100 without recurrence In 1925 Goldenberg stated that Wainschenker, of Czitomir, had performed since 1923 125 hernioplasties with pedicled autoplastic sutures, with only one recurrence In the past two years the author has performed his flap hernioplasty on 125 individuals, in whom the opposite side was also dealt with in 76 cases, making a total of 201 flap operations So far a single recurrence has been observed It seems probable therefore that in hernioplasty an operative technique has been found which will give perfect and absolutely reliable results

In conclusion I wish to express my thanks to Prof Sir Arthur Keith for the inspiration and valuable help he has readily given at all times The specimens taken from the operation cases have been prepared and mounted by Dr. C. F. Beadles, to whom also I express thanks

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CONTROL OF SCARLET FEVER IN A CHILDREN'S HOSPITAL.

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GREAT ORMOND-STREET.

A case of scarlet fever in a children's ward is always a cause of anxiety to hospital authorities, and has hitherto involved the cancelling of all admissions to and discharges from the infected ward for a period of not less than ten days Scarlet fever occurs more frequently in surgical wards and, when the infection spreads, may gravely impair the results of operative treatment Furthermore, the necessary closing of the ward entails lengthening of the usually overcharged waiting-list.

On referring to the records of the incidence of scarlet fever at this hospital during the last few years one finds considerable variation in the spread of the, infection in the exposed wards from year to year For example, in 1923, 26 cases of scarlet fever occurred in the wards of the hospital, of which only six contracted the disease from patients already in the wards The remaining 20 were all isolated cases occurring in different wards at different times In 1924, however, there were 31 cases, 15 of these were infected by contact in the wards with eight cases These involved quarantine of the wards concerned for periods varying from 10 to 22 days

The introduction of the Dick test and the possibility of protecting susceptible (Dick-positive) patients by the injection of specific antitoxic serum suggested a procedure in exposed wards which it was hoped might prevent the spread of infection, make it possible to eliminate the quarantine period, and carry on with the operative treatment of the patients in the ward.

Preventive Procedure.

Since January, 1925, the procedure detailed below has been adopted immediately a case of scarlet fever has been notified in a ward, and while the results of this procedure have been under observation, the quarantine period of 10 days has been maintained in order that the contacts might be watched for any further developments (1) All the patients in the ward were Dick-tested as soon as practicable. (2) The following day all Dick-positive children were given 5 c cm of scarlatinal antitoxic serum intramuscularly (3) On the third day these positive children were re-Dick-tested, and if any were found to give a positive or doubtful reaction a further dose of serum was given

The technique adopted in Dick testing was that suggested by Dr. R A O'Brien of the Wellcome Physiological Research Laboratories—namely, the intradermic injection of 0 2 c cm. of a 1/1000 dilution of the toxin obtained from the scarlatinal streptococcus. At the same time a control injection of 0 2 c cm of 1/1000 heated toxin (2 hours at 100° C) was given The tests were read at 10 hours, 18 hours, and 24 hours approximately A positive reaction showed a deep red blush with a circumscribed area of from 20 to 30 mm in diameter at the test injection with no reaction at the control injection. A few doubtful reactions showed a definite blush with a smaller diameter than this, these were regarded as positive for the purpose of this investigation and were protected with serum. There was no difficulty in reading the results of these tests, the reactions being marked in most cases. Very few pseudo-positive (cases in which the control injection produced a reaction) results were obtained. Infants may be difficult to test because of the extreme thinness of the skin, laxity of the subcutaneous tissues, and their disinclination to keep still The appearance of a definite intradermic bleb on injection indicates that this has been successful Subsequent observation was made for: (1) The occurrence of scarlet fever in these contacts (2) The incidence of serum rashes and the occurrence of any other unfavourable symptoms which might be attributed to the serum.

Results.

So far, 25 wards containing from 20–30 patients in each have been treated in this manner *In only one of these wards has a second case of scarlet occurred amongst the patients exposed to infection.* This one exception was significant; it occurred during the early period of this procedure, when the known methods of standardising the serum were very much more unsatisfactory than they are now. On retesting the cases which had received the serum, it was found that many of them had not been converted into Dick-negatives and a further injection of serum was necessary It was during the delay entailed in obtaining a fresh batch of serum that two further cases of scarlet fever occurred in the Dick-positive patients On two separate occasions a nurse in the infected ward contracted scarlet fever in the quarantine period After the first two or three outbreaks testing of the nurses was not done It was not considered advisable to give them a temporary passive immunity in view of their liability to further exposure to infection; an active immunisation routine for the nursing staff had not been developed and, owing to shortage of staff, it was not possible to isolate the Dick-positive nurses for the necessary quarantine On neither of these two occasions were any of the protected children infected by the nurse.

The proportion of Dick-positive children (aged infancy to 12 years) varied from 30–70 per cent in the batches tested The proportion developing serum reactions varied enormously in different wards and with different batches of serum. In the majority of wards only one or two children would show a transient urticarial rash. In a few wards, however, there were many such rashes with some pyrexia and, occasionally, author employs his usual hemi-semilunar incision, splits the external oblique, raises cord or round ligament, incises the transversalis fascia, and isolates the neck of the sac by gauze dissection In the case of a strangulated hernia or if the accompanying peritoneal fat is too large to pass up through the femoral opening in Poupart's ligament, the fibres of the latter are incised inwards towards the pubic spine After a wide excision and suture of the peritoneum, during which the bladder is always seen, the incision in the transversalis fascia is carefully sutured The opening in Poupart's ligament is closed by a pedicled flap, taken usually from the lower portion of external oblique, and is secured on the upper surface of the ligament by a pedicled autofascial suture, a free fascial slip, or by thread Occasionally a free fascial graft may be advisable In one case where a large strangulated hernia existed it was found necessary to divide the fibres of Poupart's ligament transversely The resulting gap was closed by a pedicled flap and clinically it is impossible after 18 months to detect any weak spot The difficulty in suturing a divided Poupart's ligament is well known, and although numerous methods have been devised for its restoration, none of them have ever been satisfactory

Fig. 4

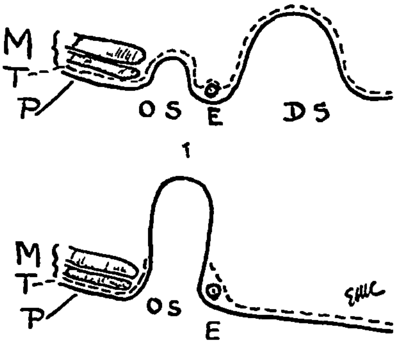


Diagram showing Hoguet's manœuvre M, oblique and transversalis muscles T, transversalis fascia (dotted line) P, peritoneum O S, potential oblique sac E, epigastric vessels D S, direct sac

Hernioplasty in Ventral Hernia

I do not propose in this lecture to enter into any detailed description of ventral hernia and its operative treatment Fascial surgery affords eminently satisfactory results Gallie and Lemesurier have described an elaborate technique, utilising 8-inch lengths of living fascia lata taken from the patient's thigh I have modified and simplified the technique enabling the surgeon to deal with 3- or 4-inch lengths (Fig 5) The short lengths of fascia, one-sixth of an inch wide, are prepared by an assistant and kept in warm saline until required In order to make the strip long enough to work with, a " loop thread " is attached by turning one end of the fascial slip over the thread and tying off by a stitch, which also pierces the fascial strip The other end carries a tail or fixation stitch, threaded on to an ordinary round-bodied needle The fascia needle attached to the " loop thread " is specially devised to push its way through aponeurotic tissues without cutting the fibres If more than one suture is required the loop end is fastened off by the fixation stitch of the next suture, and so on This combination of thread fascia is easy to work with Fascia is a slipping tissue and is not easy to manipulate as described by Gallie and Lemesurier

In repairing a large ventral hernia it may be possible after a wide dissection to prepare sound edges suitable for fascial suture If the component layers of the abdominal parietes are attenuated or even missing, the weakened wall may be reinforced by free fascial grafts taken from the patient's own thigh and secured by fascial stitches

In a case operated on nine months ago the patient, a woman of 50, presented a very thin abdominal wall, weakened by four previous laparotomies and severe X ray burns sustained during treatment following a hysterectomy for malignant disease On admission to hospital a loop of small bowel was found protruding through the skin over the centre of one of the scars A transverse incision from one superior iliac spine to the other was made and no trace of the lower portion of either rectus could be found The slack peritoneum was plicated and covered by large fascial grafts. Over this was stitched the skin, which was only half its usual thickness The patient has now a very thin abdominal wall, but has no actual hernia and is able to get about and do her household work

A filigree would probably not have been of use in this case

Filigree Methods.

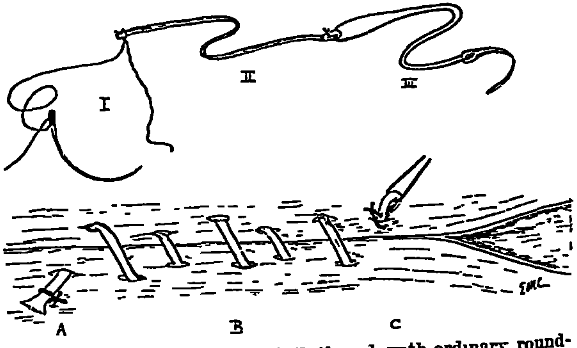
The silver filigree described by Bartlett and introduced into this country by Laurie McGavin in 1911 was at one time extensively used in the treatment of large ventral hernias The filigree tends to break up in the tissues after a time and the method has been gradually discarded With smaller filigrees the wire is not subjected to the same strain and the network may still be seen intact and in position, even after three or four years

Recurrence.

Causes —An excellent paper was published on this subject in 1922 by two French naval surgeons, Oudard and Jean Their conclusions were based on a study of 145 observations made at the time of the operation for recurrence The chief points noted were (1) The skin over the hernia sac is generally found adherent to the underlying aponeurosis, and signs of former suppuration are present (2) There is a gap in the external aponeurosis (3) In the case of a Bassini operation the muscle-fibres are found to be atrophied, especially after suppuration (4) The sac in the case of direct hernia simply reappears In oblique hernia a loculus or saccular diverticulum is usually found. This was overlooked at the original operation

In the list of operation faults these authors give the following as favouring recurrence: (1) Insufficient resection of sac (2) Mal-ligature of the sac (3) Inclusion of sac contents (4) Persistence of a too patent abdominal ring (5) Bad closure of parietes. (6) Omental adhesions to line of suture of sac mouth. (7) Suppuration

Fig. 5.



Detail of fascial suture I, tail thread with ordinary round-bodied needle II, fascial strip, which need only be 4 inches long III, loop thread with " fascial " blunt ended needle A, fixation stitch at commencement of fascial suture. B suture passed, taking in varying amounts of aponeurotic fibres C, fastening off head of stitch

A study of this list of faults will show that they are all provided against in the author's hernioplasty

Frequency of Recurrence —The most recent English figures collected are those of Surg -Commander H E R. Stephens, published in January, 1927 In some 2000 cases including inguinal, femoral, and umbilical hernias, the recurrence rate was found to be 10 per cent. Of these cases which recurred 10 per cent were operated on prior to admission to the Royal Navy, by a number of operators, many of whom undoubtedly possessed little opportunity for the frequent practice of herniorrhaphy In America Erdman published in 1923 records of the late results of 978 traced cases of hernia operations The total recurrence rate was found to be 6 67 per cent, 3 15 per cent in oblique and 16 61 per cent in direct hernias Another series published in 1920 by A S Taylor from the Johns the possibility of improvement Latterly, seven or eight rigors have been considered quite sufficient in the majority of cases, and in many of them even fewer have been found efficient in procuring an amelioration The average number of rigors in this hospital has been seven

No difficulty has been experienced in the termination of the malaria by quinine sulphate A few spontaneous cessations of malaria have occurred, but quite a reliable history of tropical malaria has been obtained in such instances—a point to be considered, especially in comparison with the disappearance of the pyrexia of renewed therapeutic infections (see below)

Relapses have occurred after all methods of infection, but most infrequently when the intramuscular route has been used—that is, in two instances only

Post-malarial Period

No spectacular results are to be looked for either during the malarial period or immediately after Although it is true that in certain cases a mental improvement seems definitely to commence at the height of the pyrexia, yet on the other hand a number of patients become acutely maniacal at this time The improvement, if any, tends to be much slower from the mental standpoint than from the physical, and may be long delayed Considerable disappointment is sometimes experienced in patients who show some amelioration shortly after the termination of the malarial attack, but who later relapse The physical condition is one of anæmia, which readily responds to iron and arsenic, and the weight of the patient should steadily increase with the passage of time Unfortunately, however, the mental improvement is by no means always in line with the bodily progress, as is evidenced by the number of patients still remaining in this hospital, of whom only four are confined to bed

One result of the treatment stands out pre-eminent: the habits of the general paralytic are but rarely good, yet after malarial therapy an improvement is noted in the great majority of cases, the faulty habits becoming clean, to the great convenience and comfort of patient and staff

Serological Changes

Careful records have been made here of the serological investigations carried out before and after treatment, and definite changes in the reactions of the cerebro-spinal fluid have been found at varying periods after malaria No generalisation can be indulged in, but in numerous instances the excess globulin is found to disappear about 12 months after the termination of pyrexia, and the gold-sol reducing power of the fluid is diminished at or soon after that time The acetic-anhydride reaction has, too, sometimes been found definitely negative after malarial treatment, although it seems much less prone to alter than the other serological tests A diminution in the cell-count is frequently evident and is sometimes very marked In a large number of cases such changes do not occur pari passu with clinical improvement, one of the worst cases at present in hospital has a colloidal gold reading of 0001110000, with negative globulin, whilst a patient who has improved almost to the point of discharge shows a gold curve of 5555554330, with a weakly positive globulin

Again, we have seen cerebro-spinal fluids which, after a period of partial "clearing," commence to recede—e g, a patient whose fluid was improved to the point of giving a reading of 2345543000 with negative globulin and acetic-anhydride reactions, subsequently gave, two years after malaria, 5555553220, with positive globulin and acetic-anhydride results and an increased cell-count. In spite of this the patient is making marked mental progress

General Treatment

The various arsenical preparations have been extensively used in after treatment, but apart from their general tonic effect they have had no influence on our patients' condition, and do not seem to have assisted in "clearing" the cerebro-spinal fluid, indeed, it has been our experience that where "914" has been administered the Lange's reading has seldom altered This cannot be taken as a fact of value, because so many cases showing mental improvement continue to give true paretic curves Use has also been made of such preparations for the termination of pyrexia, but the success has only been partial in that parasites have still been found in the peripheral blood long after the abatement of temperature

For over two years mercury and potassium iodide have been given for long periods as a routine, and these combined drugs appear to have lessened the incidence of seizures of a cerebral type in all but the failing patient. The iodide is, of course, given in increasing doses, and only in two cases has any suspicion of iodism been noticed Cerebral seizures before treatment have been comparatively common and several patients have had them during the earlier period of malaria: it is now the exception to have such occurrences in general paralytics under treatment, and where they are observed it is a good ground for a poor prognosis

It is the rule here to endeavour to keep treated cases of general paralysis under observation for at least nine months or a year The wisdom of this course has been demonstrated frequently, for there is sometimes a spurious improvement in the mental condition which gives place within three or four months to a lethargic type of grandiose behaviour, very frequently accompanied by an enormous appetite We might instance one such patient who can readily eat three full dinners at one meal, and then say he is hungry. Quite a number of the discharged cases evinced little mental betterment for the first year after malaria, and it was only at the end of that period that a slow return to mental health commenced

Second Attacks of Induced Malaria

Where no assessable improvement has ensued, and where the physical condition permits, an attempt to induce a second series of rigors is made This, however, has proved a matter of great difficulty in a considerable number of cases, for there seems to be a very well-defined resistance of the body to the parasite, and no satisfactory explanation can be advanced to account for this state of things

Resistance has been offered to both the natural and "unnatural" infections, patients have been resistant to intramuscular and intravenous infections and have yet had this resistance overcome by mosquitoes, a few have been resistant to mosquito bites (of mosquitoes which were known to be infective and which had infected other patients within 20 minutes), and these have developed malaria by a patient-to-patient infection, again, a very few have proved to be resistant both to mosquitoes and to injection of known malarial blood Such immunity does not appear to be explicable by reference to the original source of the primary attack, its length, the incidence of relapses, the age and conditions of the patient, or their blood groups In fact, no constant factor is ascertainable in this class of patient, possibly it lies within the sphere of biochemistry The second incubation period bears a close resemblance to that of the primary attack, taking into account the route of infection employed The incubation period for any individual case, however, may vary by quite a few days in the second attack as compared with the first

When malaria is induced by therapeutic methods for a second time, another factor has to be reckoned with The primary attack seldom "cures itself" and quinine has to be exhibited in the ordinary way In the second attack, however, it is almost the rule to find a spontaneous remission, pyrexia disappearing before the parasites Soon after, however, the blood film becomes and remains negative Nowadays, when a patient shows a spontaneous remission in what is regarded as the primary attack, it is enough to make one almost certain that he has previously had malaria diarrhœa The type of reaction varied Usually there was some pyrexia, 100° F —and in a few cases 102°—during the 24 hours following injection This might, or might not, be associated with the later rash In all cases the reaction appeared to be very much milder than that of adults The children did not complain of joint pains and did not appear to be ill I had thought this variation to be largely attributable to the batch of serum employed, but Dr O'Brien informed me that the sera were all "pooled" batches from various horses and he suggested that these variations might be due to the relatively small number of patients (20 to 30) in each series

So far no superiority of the concentrated over the unconcentrated serum has been observed in Dick-conversion or the production of serum reactions However, a routine injection of 5 c cm of serum was always given, and no attempt was made to compare the minimal doses of the two types of serum which would convert Dick-positives into negatives in parallel cases On a few occasions, owing to a later outbreak of scarlet fever in a previously infected ward, it happened that a child previously Dick-positive was retested and had to be protected again In these cases, prior to inoculation with the serum, an intradermal injection of 0 2 c cm. of 1/100 dilution of the serum was given, and the child watched for half an hour for the development of local or general reaction. No cases of anaphylaxis occurred

No systematic observations of the duration of the passive immunity afforded by the serum were made On re-Dick-testing children in the subsequent outbreaks referred to above, after intervals of a month and six weeks, it was noticed that in about half a dozen cases the Dick test was undoubtedly modified by the previous dose of serum In none of these cases was the reaction absolutely negative, but it was fainter and more diffuse, in two of these cases there was a pseudo-reaction with the control

In view of our experience with these 25 outbreaks, it has been decided to adopt this procedure as a routine in future, to ignore the quarantine of the ward, and to proceed with operations, admissions, and discharges In fact, this has already been done in two wards without any untoward result

Another use of the Dick test may be noted in this connexion In December, 1924, three cases of suspicious sore-throat with pyrexia and vomiting had occurred in one ward These had been regarded as possible mild cases of scarlet fever, and they had been isolated together with three contacts No rash or peeling had developed It was desired to clear up the diagnosis in order to return these patients to a general ward Dick tests were carried out three weeks after the incidence of the sore-throats The three affected children all gave positive reactions Two contacts gave negative results and one was doubtful Therefore it was presumed that these sore-throats had not been scarlatinal and the patients were returned to the general ward. No further cases of scarlet fever occurred in the ward

Summary.

(1) The procedure adopted in 25 wards containing from 20 to 30 patients suggests that the spread of the infection can be controlled No second case of scarlet fever occurred in any of the protected patients (2) No effects dangerous to the patient could be traced to the Dick test or serum injection, though, in a small minority of cases, the serum reaction was severe enough to cause pyrexia and some diarrhœa extending over a few days (3) This procedure would appear to be applicable to schools and institutions other than children's hospitals

I am indebted to the honorary staff of the hospital for permission to publish these results obtained from observation of cases under their charge to the resident staff for their co-operation in reading the tests and injecting the serum, to Dr R A. O'Brien of the Wellcome Laboratories of Physiological Research for supplying toxin and serum, and to Dr D Nabarro in whose department the work was done.

MALARIAL THERAPY IN GENERAL PARALYSIS OF THE INSANE.

A REVIEW OF THREE YEARS' WORK

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AND
J ERNEST NICOLE, L M.S S A Lond,
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The treatment of suitable general paralytics by malaria was commenced at this hospital a little over three years ago, and has since been carried on systematically During this period more than 150 cases have been diagnosed clinically and confirmed in the laboratory, a large number of which have been subjected to malaria, and the general results and observations made thereon are quoted below Very few definite conclusions can be arrived at in so short a space of time, and only tentative opinions as to the value of the treatment can be offered

Of the total number admitted only 28 cases have not been treated and all these have since died, of the remainder, 13 failed to develop malaria, and these have also died, 120 patients have had induced malaria, but 10 of these are too recent to be included in our discussion of results, 38 deaths have occurred amongst those who have had malaria, 2 have been transferred, and 26 discharged, leaving 54 presently in hospital

Admitted	161	Died treated—	
		Malaria	38
Inoculated—		No malaria	13
Malaria	120		
No malaria	13	Died untreated	28
		Discharged	28
Not treated	28	Remaining	54

Primary Infection

Infection has been conveyed to the patients by all routes, and an analysis of the successful cases is as follows —

Mosquito Infection —24 cases, the longest incubation period was 22 days, the shortest 8, and the average 13 days

Intravenously —25 cases, the longest incubation period was 22 days, the shortest 4, and the average 12 days

Intramuscularly —70 cases, the longest incubation period was 25 days, the shortest 5, and the average 12 days

Subcuticularly —One case only, with an incubation period of 19 days

The length of the incubation period seems to have little or no relation to the season of the year

As a rule, where mosquito infection has been used, the parasite is found in the peripheral blood two or three days before the onset of pyrexia, where, however, the "unnatural" route is chosen, pyrexia precedes demonstrable parasites

A feature of interest in the incubation period is that, concomitant with the gradual lowering of the hæmoglobin content of the blood during the few days prior to the first real rigor, smaller rises of temperature may be noticed, seldom reaching higher than 100° F From the periodicity of these minor rises, it is often possible to foretell the type of the oncoming malaria These minor rises may well be due to the liberation of those toxins without the presence of which Stitt considers a true malarial rigor can not be produced In answer to the possible objection that many patients do not show these preliminary and mild rises of temperature, it may be pointed out that in numerous cases where these signs are absent the first true pyrexia is unaccompanied by the shivering of rigor

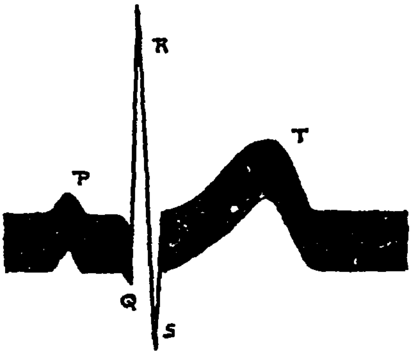
Period of Pyrexia

Although all malaria conveyed to patients has been of a known benign tertian type, there has been no certainty of periodicity in pyrexia; mosquito-borne malaria has, on the whole, proved more true to type in this respect Little need be said about the actual malarial period, in the earlier days it was considered that the greater the number of rigors obtainable, the greater and the extent to which it is damaged—e g., if the auricle is chiefly involved an auricular irregularity or tachycardia commonly results, while if the bundle system is chiefly affected some variety of heart-block results.

Fig 1 shows a normal electrocardiogram P, Q, R, S, and T being the waves produced by auricle, right and left ventricles, and the aortic base respectively, and P-R the time interval taken by the contraction wave to traverse the bundle of His.

Figs 2 and 3 are diagrams of typical electrocardiograms (lead 2) from cases of ordinary physiological tachycardia and well-marked Graves's disease.

FIG 1.



Normal electrocardiogram. The mean of a number of curves taken from healthy students (lead 2.)

Certain differences will be noted (1) While in physiological tachycardia (Fig 2) the P waves are always smaller than the T, it will be seen that in the case of acute thyrotoxicosis (Fig 3) the P waves reach the level of the T waves; either, therefore, the auricular contractions in Fig 3 are relatively greater than in the other case, or the contractions in the regions of the ventricular base are smaller. In either case this alteration, implying as it does auricular over-action or alternatively an impairment of function in the region of the base of the ventricle, points to some change in the heart musculature. (2) In Fig 2 the P-R interval is within the normal (0 2 seconds), in the case of Graves's disease this is often increased, indicating delayed conduction in the bundle of His.

It is well known that auricular fibrillation—a manifestation of gross damage to the auricles—is common in Graves's disease.

Probably enough has been said to indicate that electrocardiograms in Graves's disease show that there are good reasons for believing that degenerative changes take place in the myocardium.[1] In 1917, in a paper enumerating the causes of sudden death Sir Bernard Spilsbury[2] pointed out that "exophthalmic goitre occupies an important position as a disease liable to cause sudden death owing to secondary disease of the heart muscle. . . death may occur suddenly with no apparent cause."

It is this secondary disease of the heart muscle, still sceptically regarded by many, with which we are concerned here. We submit that it is well illustrated in the following case.

Clinical Record

N M, a previously healthy young woman, aged 21, consulted her doctor in February 1924, because of palpitation. There was not much enlargement of the thyroid at this time, nor any sign of exophthalmos, but her condition became worse, and early in August a diagnosis of well-established exophthalmic goitre was made. She rapidly became worse and later in the month was sent to hospital. She then presented all the cardinal signs and appearance of a typical, well-marked case of acute Graves's disease.

As six months' medical treatment had proved ineffective, it was decided to attempt to reduce the degree of thyrotoxicosis by cutting off part of the blood-supply to the thyroid. She was much too ill to be subjected to an anæsthetic and partial thyroidectomy and so, nine days after her admission, polar ligation of the right superior thyroid artery was performed under local analgesia. After this there was a distinct improvement in her condition. She stated that she had not felt so well for a very long time, but a fortnight later she had an attack of acute thyroidism which, it was thought, would prove fatal. The intensity of this attack subsided somewhat, however, and six weeks after the first ligation, with a view to checking still more the degree of intoxication, the *second* superior thyroid was tied under local analgesia.[3] Forty-eight hours afterwards, however, she had another exacerbation which proved fatal.

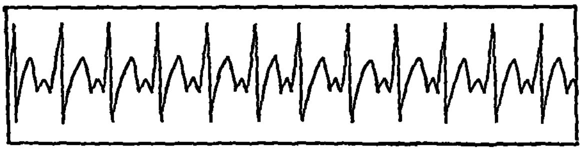
At no time while the patient was under observation in hospital did she suffer from auricular fibrillation; the pulse was regular, its rate varying from 96 to 160 beats per minute. The case was an advanced and very acute one that showed little or no response to rest or medical treatment. Subsequent examination has shown that the damage to the heart muscle was such that but little could have been expected from surgical treatment had it been possible suddenly to put out of action the over-active thyroid.

Pathological Findings.

After death the right side of the heart was found to be dilated, the valves were healthy in appearance and competent, and wherever it was cut the muscle *appeared* healthy and normal in thickness and colour. One could quite understand why many maintain that in these cases the heart action is a functional disturbance. However, the microscopic appearances in this case have shown beyond doubt that there was diffuse myocardial degeneration present.

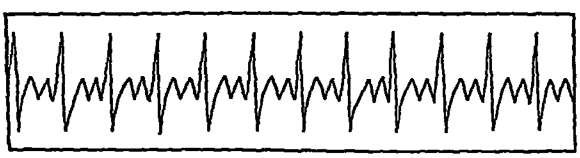
Sections were cut from both auricles, both ventricles, and the region of the interventricular septum. These were stained with hæmatoxylin and eosin, and then other methods, Gram, van Giesen, and Weigert's fibrin-staining were tried to heighten the contrast.[4] The outstanding feature of these sections is necrosis of bundles of muscle-fibres scattered amongst apparently healthy fibres. This is shown in the accompanying microphotograph (Fig 4). Evidence of the intensity of the toxæmia is gathered from the fact that in some of the sections certain of the necrosed muscle areas are free from invading cells, whereas as one would expect other areas are markedly infiltrated, probably with a view to absorption of the necrotic *débris*. An enormous preponderance of polymorphonuclear leucocytes is seen in the section of the left auricle, but the process of scattered muscle-fibre necrosis is apparent in both auricles and both ventricles. Some capillaries are found choked with cells which can be seen infiltrating surrounding necrotic areas.

FIG. 2.



Physiological tachycardia. T waves considerably greater than P waves.

FIG 3



Tachycardia in well-established thyrotoxicosis. T waves = P waves.

A close examination of all sections shows the most marked and most recent degeneration, probably the immediate cause of death, in the right ventricle, where large areas of necrosis, devoid of any infiltrating phagocytic cells are apparent, the least change in the region of the interventricular septum and the oldest changes, judging by the concentration of infiltrating cells, in the auricles.

These changes are what we should expect from the clinical findings. It will be remembered that post mortem there was right heart dilatation, that during

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[2] Sudden Death, Practitioner, 1917, p 132.

[3] From recent investigation we are now of opinion that it would have been preferable to have tied the inferior artery of the same side as the previous ligation.

[4] For the sections we are indebted to Mr. C R Drury.

Quite what bearing such "immunity" and spontaneous remission have in the sphere of preventive medicine it is not our province to decide It may be that "unavoidable" malaria is cut short as quickly as possible with the prevention of antibody production, if such production occurs, in induced malaria, on the other hand, the fever is definitely encouraged and allowed to continue as long as the patient is equal to the strain Against this, however, must be placed the fact that, where the physical condition of the patient has demanded it, the infection is quickly terminated, despite but two or three rigors; in such cases the same immunity has been experienced, whilst mosquito-infected patients who have had a relapse of malaria are also known to have shown quite a definite resistance Whatever the reason, the second induced attack is usually of much shorter duration and, although the rigors are true to type, the frequency of spontaneous remission has been such as only to permit our patients to have on an average five high fever reactions

On the whole the second attack drains the system of most patients to a less degree than does the first The exception to this is the patient who, in the intervening period, has become excessively fat Nowadays such a patient is left severely alone, and no attempt is made, whilst he is in this condition, to infect him again The unhealthy fat seems to overtax the heart to a marked degree, and further malaria puts too great a strain thereon Second infection has been only attempted with such patients as have made no definite mental progress, an interval of approximately one year, and frequently longer, has been allowed to elapse before such attempt was made That a second induction is justified is proved by the fact that of the 30 cases reinfected 3 have been discharged, 4 are doing really well, whilst 5 have shown some improvement

Conclusions.

It is rather difficult to assess the value of the malaria treatment, and certainly no opinion can be given with authority such as is given by the German observers who claim to have had patients discharged and usefully employed for seven years No such opportunity has been enjoyed as yet, and our results are not so happy

Although we have discharged 26 patients, 3 of these are known to have been readmitted to other hospitals in a definitely relapsed condition, and 2 others have been returned to us, moreover, we have here at present 2 cases treated at other mental hospitals who had subsequently relapsed On the other hand, we have heard of some of our patients who have been at work for more than a year, and of one who has been discharged for more than two years and shows no signs of a relapse Excluding the 10 most recent cases, and allowing for such relapses as are known to have occurred, the recovery rate works out at 20 per cent Possibly, owing to earlier diagnosis elsewhere, the cases admitted recently have been of a type which will respond and are actually responding more satisfactorily to the malarial therapy

In view of the hitherto almost hopeless prognosis in general paralysis of the insane the percentage recovery (or remission) we have obtained seems to be complete justification for the use of malarial therapy In addition, from a hospital point of view the treatment is certainly well worth while, as the patients become much more easily dealt with, and, in fact, if the only improvement to be found was in their habits (which almost invariably become clean) the advantages accruing therefrom would be sufficient to warrant the work

We would wish to record our acknowledgments to Dr T W Davidson, late of this hospital, who published some details of the first results obtained, early in 1925 To the medical superintendent of this hospital, Dr F M Rodgers, we are again indebted for permission to use hospital facts and figures, and for much kindly supervision

THE NATURE OF
THYROTOXIC MYOCARDITIS

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That sustained thyrotoxicosis ultimately results in definite myocardial degeneration is by no means accepted universally It is our intention here to endeavour to establish this thesis

Frequently one hears the disordered heart action in exophthalmic goitre referred to as functional, and although it is well known that cases of Graves's disease may die suddenly, the heart failure has been regarded by many merely as the outcome of exhaustion following the rapid heart action

On consulting a number of recent text-books of medicine we find that where reference is made to the morbid histology of Graves's disease, mention is made of the thyroid, the thymus, the cervical sympathetic ganglia, the blood, the brain and spinal cord, the spleen, cervical and bronchial glands, even Peyer's patches, but that references to the heart are conspicuously wanting In one work we read that in some cases the heart is dilated and that valve trouble may be present, while according to the author the sympathetic ganglia have been found to be diseased also Another writer states that in the great majority the heart is perfectly sound, and that after death in uncomplicated cases the heart is found to be normal in both the valves and the muscular tissue We cannot regard these findings as typical

One of us (J S G) has for a number of years maintained, and to the satisfaction of many demonstrated by means of the electrocardiograph, that definite myocardial damage does occur[1] In this paper it is our purpose to refer to the morbid histology of the condition, but before dismissing the subject of the electrocardiographic manifestations we would draw attention to certain aspects of this side of the question

The myocardium differs from all other muscular tissue, the common properties of which are irritability, contractility, conductivity, and tonicity, by showing a differentiation of these various functions by their special development in certain of its parts Irritability is predominant in the auricles and determines the origin of the beat, contractility in the walls of the cardiac chambers generally, particularly those of the ventricles, and in the papillary muscles, conductivity has become largely allocated to a special system, the auriculo-ventricular bundle of His, while tonicity, although like these others a property of the cardiac musculature generally, is especially developed in the region of the valve rings so that these may be regarded as modified sphincters, which normally keep the valves competent

Electrocardiographic Evidence

The electrical changes produced during a cardiac cycle are modified by damage to any part of the myocardium, probably in a manner comparable with their modification in injured skeletal muscle, which, as is well known, becomes electro-negative to healthy muscle

Owing to this differentiation of function in the myocardium the physical signs and electrical manifestations of damage to it differ with the part affected

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[1] The Heart in Graves's Disease, Practitioner, July, 1920

Clinical and Laboratory Notes.

DIABETES INSIPIDUS

OCCURRING IN A CASE OF LYMPHATIC LEUKÆMIA OF ALEUKÆMIC TYPE

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HONORARY PHYSICIAN, WOLVERHAMPTON AND STAFFORDSHIRE HOSPITAL.

Beyond a casual statement by Schmorl[1] in the course of a discussion, that the pituitary, and especially its anterior lobe, can be affected by leukæmic infiltration like the other organs of the body, there is almost complete absence in the literature of any references to infiltration of the pituitary in leukæmia. I can find no instance recorded of the association of lymphatic leukæmia, infiltration of the pituitary, and diabetes insipidus, such as occurred in the following case.

S. L., male, aged 20, was admitted to hospital on July 27th, 1923, as a suspected case of diphtheria, both tonsils being swollen and covered with patches of white exudate. He had been in perfect health till two years previously, when he noticed that the inguinal glands were swollen, though they caused him no trouble. After this the glands used to swell to a "considerable size" and then diminish again, but he thought so little of them that he never troubled to seek advice. This state of affairs continued for some 23 months, when on June 23rd, 1923, he left off work, owing to a swelling in the left side of the neck, presumably due to enlarged glands. Soon after this the glands on the right side also became enlarged and caused difficulty in swallowing. At the same time a rash appeared. Fourteen days before admission the glands in both axillæ became enlarged. The disease had thus apparently begun in the inguinal glands and remained confined to them for nearly two years before suddenly becoming generalised.

On admission the tongue was very red and raw. Both tonsils, the uvula, and soft palate were injected and swollen. The tonsils were covered with numerous circular patches of white membrane, which were easily stripped off. On culture a streptococcus only was obtained. The skin of the trunk was covered with a large number of firm pink plaques of oval or circular shape. Although pink was the predominant colour, a few had a purplish tint, and with the lapse of time this became true of all. With the exception of two plaques on the forehead the head and limbs were not affected by the eruption. The plaques varied in size from a pea to a half-crown. The glands in both inguinal regions, both axillæ, and both sides of the neck were enlarged, the biggest being of the size of a pigeon's egg.

There was stony dullness under the manubrium, which was regarded as being due to a tumour in the anterior mediastinum. This was confirmed by a skiagram, which Dr. G. E. Dyas kindly took for me.

Blood count on *July 30th, 1923*. Red cells, 4,820,000 per c.mm.; hæmoglobin, 75 per cent.; white cells, 7680 per c.mm.; polymorphonuclears 63 per cent., lymphocytes, 30 per cent., large mononuclears, 3 per cent., eosinophils, 3 per cent.; basophils, 1 per cent. The urine was normal. There was no enlargement of the liver or the spleen and the Wassermann reaction was negative.

Course of the Illness

The throat infection began to clear up after admission and entirely disappeared in a week. On August 3rd it was noted that the glands in the neck were increasing rapidly in size. At their height they reached the size of a bantam's egg, remained like that for a few days and then rapidly subsided. They caused great respiratory distress, but by the end of the month they were only just palpable. As they diminished the glands just above the right clavicle slowly increased in size. These in their turn diminished, and had disappeared by the middle of September. A week later the patient was suffering from cyanosis and great dyspnœa, with great enlargement of all the cervical glands, which had swollen to the size of a duck's egg in the course of three days. They slowly decreased, and by Oct. 5th were again only just palpable. As they waned the inguinal glands waxed, becoming very tender and as big as the cervical glands had lately been. On Oct. 17th the cervical glands again began to swell, and had reached their peak and almost disappeared by Nov. 4th when large glands appeared in the occipital region, remaining till his death five days later.

Blood count on Oct. 11th, 1923, showed: red cells, 3,482,000 per c.mm., hæmoglobin, 55 per cent., white cells, 7840 per c.mm., polymorphonuclears, 41 per cent., lymphocytes, 54 per cent.; large mononuclears, 6 per cent., with no eosinophils or basophils. On Nov. 1st, 1923, a count gave red cells, 3,416,000 per c.mm., hæmoglobin, 55 per cent.; white cells, 12,360 per c.mm., polymorphonuclears, 35 per cent., lymphocytes, 62 per cent., large mononuclears, 3 per cent., and no eosinophils or basophils.

The skin condition remained the same as when first seen until the end of October, when the nodules began to disappear, leaving a faint purplish-brown stain. Death was preceded by an outbreak of purpuric spots on both arms and legs, accompanied by a small epistaxis and three severe attacks of hæmatemesis, in the last of which he died. The temperature was irregular during the last three weeks of life, rising to 101° F.

Polyuria

Polyuria began suddenly on Oct. 26th 1923, the daily amount of urine having been normal until Oct. 24th. On Oct. 25th he complained of great thirst and passed 54 oz. of urine. On the 26th the output of urine rose to 112 oz. and thirst became a very urgent symptom. He was allowed an unrestricted intake of water. The intake of water and the output of urine bore a very close relation to each other, the total intake over the period Oct. 26th to Nov. 8th being 2256 oz., and the total output of urine over the same period being 2076 oz., the respective daily averages being an intake of 160.7 oz. against an output of 148.3 oz. The course of the polyuria is shown in the following table.

A = Intake of fluid in ounces. B = Output of urine in ounces.

Oct	A	B	Oct	A	B	Nov	A	B
25th	?	54	31st	168	160	5th	220	174
26th	166	110	Nov			6th	170	164
27th	192	136	1st	190	154	7th	120	136
28th*	210	206	2nd	140	126	8th	100	100
29th	170	152	3rd	106	98			
30th	180	156	4th	98	104		2250	2076

* On Oct. 28th Pituitrin 0.5 c.cm. twice daily was begun and continued till death.

When first given the pituitrin greatly relieved the condition, but afterwards it had little effect. The variations from day to day were probably more influenced by changes in the amount and locality of the lymphocytic infiltration going on in the pituitary gland. The urine passed over this period had an average specific gravity of 1004, and had no abnormal constituents.

Post-mortem Examination

The *heart* showed a large number of soft yellowish-white spots and streaks, infiltrating the whole myocardium, and visible on both pericardial and endocardial surfaces. Microscopically, these patches consisted of areas of lymphocytic infiltration between the muscle-fibres, which in places were widely separated. The cells consisted almost entirely of small lymphocytes.

The *lungs* were normal to the naked eye, but microscopically there was a general infiltration of the inter-alveolar tissue with small lymphocytes. The bronchial glands were enlarged and connected with a firm white mass which occupied the whole of the anterior mediastinum. This was composed of small round cells, exactly resembling lymphocytes, with a well-developed fibrous stroma. The *spleen* (13 oz.) was hard. Its cut surface was of a uniform dark-red colour, in which it was impossible to distinguish the Malpighian bodies. Microscopically, the splenic pulp was crowded with cells resembling small lymphocytes which had obliterated the Malpighian bodies. The *liver* (60 oz.) was smooth and quite homogeneous, but histologically showed the same general lymphocytic infiltration as the other organs. This was most marked in the portal areas, but in many cases penetrated into the lobules. Both *kidneys* were much enlarged (R. 7½ oz., L. 7¾ oz.) and on section had a mottled appearance, due to numerous yellow patches and streaks, the largest of which were of the size of a halfpenny. The renal tissue between these areas appeared to be quite normal. Microscopically, the kidneys were the subject of a diffuse infiltration with small lymphocytes, which were aggregated in places into patches of wide extent, especially in the neighbourhood of the tubules. The lymphocytic infiltration was heavier in the kidneys than in any other organ.

The brain was normal to the naked eye, but was unfortunately not examined microscopically. The *pituitary body* also appeared normal, but microscopically it was affected by the same infiltration with small lymphocytes that has been described in the other organs. This was of a diffuse character and affected all parts of the gland, though the pars anterior was the most heavily burdened, the life the patient had a very fast pulse (absence of damage to a -v. bundle), and that at no time while under observation did auricular fibrillation occur The necrosed muscle bundles seen in these sections recall Zenker's degeneration found typically in the recti abdominales in typhoid fever.

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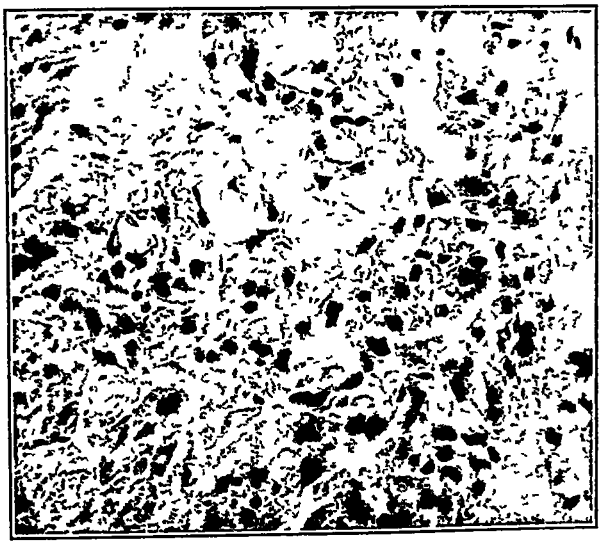
[1] Schmorl: Verhandl. d. Deutsch. Path. Gesellsch., 1914, xvii., 231.

It is interesting to note that according to MacCallum, Stejskal and others have described hyaline degeneration or actual necrosis of muscle-fibres scattered throughout the hearts of those dying from sudden collapse at the height of diphtheria, and also in those dying from peritonitis

Fig 4



Microscopic appearance of section of the right ventricle of a woman aged 21 with Graves's disease Magnified 750 diameters Stained with hæmatoxylin and eosin Note the pale areas of necrosed muscle, the swollen nuclei, and the patchy distribution of the areas of necrosis

Pathological Changes

We would summarise the pathological changes as follows —

1 Hyaline degeneration and necrosis of many bundles of fibres scattered throughout the myocardium The necrosed bundles take the stain badly, are swollen, and lack definition The nuclei of some are also swollen

2 A migration of evidently phagocytic cells in the direction of certain of the necrosed fibres no doubt in order to promote their absorption This infiltration, while very marked in places, is absent in others

3 Dilated capillaries choked with endothelial cells which are infiltrating certain necrotic areas in their vicinity

It will be seen that these changes point to a very definite myocardial degeneration, a degeneration so diffuse and extensive that, at first, it looked almost like an infective condition No organisms, however, were discovered in sections especially prepared with Gram's stain

Owing to the courtesy of Dr R W Scarf we have been able to examine sections of the myocardium in another case of fatal thyrotoxicosis, that of a woman of 51 who was being treated by X ray exposures to the thyroid During an application she collapsed and died a few hours afterwards [5] In this case in addition to muscle bundle necrosis similar to but not as marked as in the case of the girl of 21, there was what was absent in the younger case—namely, fragmentation of the ventricular fibres

From such cases we feel justified in concluding that definite myocardial degeneration does occur as the result of prolonged thyrotoxicosis, a conclusion previously reached by us from the clinical and electro cardiographical signs

We are not concerned here with the nature of the toxic thyroid secretion Some years ago McCarrison pointed out that in Graves's disease it was probably altered qualitatively as well as quantitatively, for this reason such terms as dysthyroidic hyperthyroidism (De Quervain), thyrotoxicosis (Kocher), and thyroidism have been introduced and are preferable to the term hyperthyroidism That this secretion produces myocardial degeneration is becoming more and more apparent The morbid histology of the heart in Graves's disease has been drawn attention to by other workers Thus in 1916 Fahr reported destructive lesions of the myocardium in five cases, two in girls of 21 who died from heart failure following partial thyroidectomy, one in a woman of 43, another in a woman of 53, and the fifth in a man of 48 In each case interstitial myocarditis was found, the cardiac muscle-fibres showing degenerative changes with infiltration of leucocytes between them and around the vessels

Since Fahr's report Goodpasture has added two more cases, one a woman of 45, the other a man of the same age, but, as the latter patient was luetic, we are unable to regard this as a pure case of thyrotoxic myocarditis All these cases, with the possible exception of the last support the thesis with which we introduced this paper, that prolonged thyrotoxicosis results in definite myocardial degeneration

If by drawing attention to the existence of thyrotoxic myocarditis and its nature we have also been able to indicate the importance of early and effective treatment of Graves's disease and other forms of thyroidism, we shall be more than gratified, for it will be obvious that the more advanced the changes in the heart muscle the greater the danger of any radical treatment and the less the degree of recovery to be expected therefrom

Before concluding we should like to state how much indebted we are to both Sir Arthur Keith and Sir Bernard Spilsbury for their kindness in carefully examining these sections and encouraging us to record this case

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Victoria Infirmary, Glasgow —On Saturday last Sir John Gilmour, Secretary of State for Scotland opened a new wing of this hospital, which includes an extension of the nurses' home

New Hospital Scheme at Liverpool —After five years' preparation a voluntary hospitals contributory scheme was approved at a meeting representative of the Liverpool Hospitals held at Liverpool on Feb 25th The scheme of the Liverpool Voluntary Hospitals Council is "to raise money by voluntary contributions for the support of hospitals and convalescent homes in Liverpool and to distribute the funds so collected in its discretion A special appeal in order to start the fund will be made on June 1st The scheme incorporates the Hospital Saturday and Sunday Funds, but does not apply to subscriptions, donations, or proceeds of social functions, and the like for individual hospitals The constitution of the council was arranged and included in the executive are six representatives each of employers and employees Mr Sydney Lamb of New Wanstead, Essex, was appointed organising officer to the scheme at a salary of £1000 a year Mr Lamb was responsible for the great success of the Sheffield Voluntary Hospitals contributory scheme, upon which the Liverpool scheme is based third degree to the good ear was present. The caloric test was not performed as the patient's condition was poor The mastoid process was slightly tender on the tip; there was no tenderness over the mastoid antrum

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[5] This case is of particular interest in view of the fact that whereas some years ago one of us (J S G) pointed out that X ray treatment reduced or abolished most of the symptoms of thyrotoxicosis, it appeared to be less effective in arresting myocardial degeneration

From the absence of definite signs and the age of the patient a labyrinthine hæmorrhage was considered as a possible diagnosis yet the tuning-fork tests and the slight pain in the ear decided me to do a paracentesis, which revealed thick yellow pus. The diagnosis of suppurative labyrinthitis was then made and it was resolved to operate.

The *operation* revealed a small quantity of thin muco-pus in a cancellous mastoid The lateral sinus was white On incision the sinus was empty, exposure far back towards the *torcula* revealed blood. On removing the bone anterior to the lateral sinus pus exuded from the bone and on further exposure an abscess in the cerebellum with a well-formed wall was found A tube was inserted in this cavity and the Neuman's labyrinth operation was performed. The patient was in excellent condition on Jan 8th, but on the 9th the temperature rose and the patient became comatose and died

The remarkable features of this case were the dresence of the light reflex and an almost normal tympanic membrane with mastoiditis, lateral sinus thrombosis and cerebellar abscess The infection evidently started in the mastoid and secondarily involved the middle ear Furthermore the case is remarkable in that symptoms directed the patient's doctor's attention to the abdomen, the presence of nystagmus being the only prominent aural sign for both tympanic membranes had to be examined before one was convinced that the right was abnormal As there was no history of trauma to the mastoid, which would make the region a *locus minoris resistentiæ* for organisms circulating in the blood, one must conclude that the infecting agent was brought directly into the antrum by the blood or through the Eustachian tube into the antrum without infection of the tympanic cavity Such an infection is usually due to the *Streptococcus mucosus*, which gives a picture on the tympanic membrane like that of chronic catarrh and is sometimes treated for that with disastrous results

The condition also reminds one of acute mastoiditis which develops in children after an attack of diarrhœa. In such cases the tympanic membrane is not ruptured and is white, the only abnormality present on the tympanic membrane being an absence of the light reflex

Darlington

Medical Societies.

MEDICO-LEGAL SOCIETY.

A meeting of this Society was held on Feb 24th, Sir William Willcox in the chair, when Dr. Frederick J. McCann read a paper on

Cases of Medico-legal Interest in the Practice of Gynæcology

Dealing first with virginity and defloration, Dr McCann said that on medical evidence alone it was difficult, and sometimes impossible, to establish the fact that a woman was a virgo intacta. Mr. D. Cotes-Preedy had stated that "the presence of a hymen is generally received by the court as sufficient evidence of the accused being a virgo intacta" But the presence of an unruptured hymen was not absolute proof of virginity, nor did a torn hymen prove that a woman was not a virgo intacta; it was often impossible to be sure unless the vulva was seen soon after the attempt, before the torn surfaces could unite A young woman arrested for loitering and prostitution was examined and found to have a well-developed semilunar hymen, thin, and readily distensible In the centre was a small notch, and leading backwards from the notch was a tiny white scar, indicating that there had been a partial tear in this position, which had healed. He could not report that she was a virgo intacta, but said that she did not seem to have had repeated intercourse Too often the hymen was torn during examinations without considering consequences and the pelvic organs of virgins should be examined per rectum wherever possible If the hymen had been injured it should be repaired by accurate suture with fine catgut Signs of virginity were sought in the hymen, fourchette, perineum, and vagina The breasts gave no guidance, for even milk might be present in the virginal breast infants sometimes being put to the breasts of a virgin Sometimes a hymen had a vertical opening, and the inexperienced might consider that this was a rupture What was of most importance in legal medicine was the texture and consistence of the hymen A thin elastic membrane was not easily ruptured; if ruptured it bled little, and it could be pushed upwards by the male and satisfactory coitus ensue without rupture Kanony had collected records of 43 cases of pregnancy in which the hymen remained unruptured. Coitus did not destroy the hymen, it only ruptured it in one or more places In some cases the texture of the hymen was such that it was readily torn and bled freely; sometimes it had to be divided to permit of coitus Much had been made in the courts of the possibility that the hymen might be absent from birth, but he had never encountered such a case It might, however, be so altered by inflammation or injury that signs of virginity could not be determined.

The exanthemata and diphtheria had a great influence on the generative organs of the female child; inflammation might even result in an imperforate hymen or an imperforate vagina The effect of masturbation was usually a dilatation of the hymeneal orifice, without evidence of rupture The fourchette and the perineum might be torn by violent intercourse, or when the diameter of the penis was out of proportion to the aperture. The absence of such injury was no proof of virginity. No reliance could be placed on the absence of rugosity in the vaginal walls as a sign that penetration had occurred All the signs of virginity might be present in a woman who was not a virgin, and all those signs might be absent in a virgin He had been called to a woman, aged 60 who had advanced abdominal cancer. Her first husband had been impotent and had so remained until his death, and her second marriage had never been consummated Her hymen was tough and resistant with a small central opening He considered she was a virgo intacta despite 30 years of married life Another woman, married eight years, had never had connexion Both these women seemed very ignorant of sexual matters. In all cases of a difficult kind he suggested that an expert in gynæcology should be consulted

Turning next to the consideration of rape, Dr. McCann said medical men not infrequently became the dupes of designing females through accepting statements which were not justified It was not always possible to say whether the female sexual organs had suffered violence by the male or by other physical means To come to the definition of rape penetration to the vulva was said to be sufficient In a recent case in which there was neither defloration nor signs of violence nor the presence of spermatozoa such a charge could not be sustained on medical evidence alone. The phrase "penetration to the vulva" was meaningless in the case of the child, because in the very young child the hymen projected beyond the level of the surrounding parts In legal medicine the differences between the female child and the adult were often ignored In adult females, unless defloration violence, or the deposition of semen could be proved, the charge could not be sustained on medical grounds In some of the cases which had come to his notice false charges had been made against men because of the existence of a purulent discharge in children A purulent discharge from a child's vulva was not sufficient ground for a criminal charge; there might be an organism lymphocytes in this region showing a tendency to accumulate in small masses

The *lymphatic structures* throughout the body were greatly enlarged In the intestines the Peyer's patches and solitary nodules were swollen The lymphatic glands were enlarged in varying degrees, though all groups were affected Histologically, in the smaller glands the normal structure could still be made out, though obscured by a general packing with small lymphocytes which in the larger glands had completely obliterated their structure A section of one of the cutaneous nodules revealed a large irregular collection of lymphocytes, gathered especially round the hair follicles and sweat glands, and lying under the epidermis, which was intact Bone-marrow was taken from the lower third of the femur The normal hæmopoietic cells were recognisable, but the marrow was very cellular owing to a diffuse packing with lymphocytes

Discussion

There can be no doubt that this case was one of lymphatic leukæmia of the aleukæmic type, having a general lymphocytic infiltration of all the organs without the typical blood changes Apart from the polyuria, the case is very similar to one reported by Blankenhorn and Goldblatt [2] The disease apparently remained confined to the inguinal glands for two years and then suddenly became generalised It is possible that the typical blood picture of lymphatic leukæmia might have come later, as there was a progressive anæmia, and the total white cells had increased while under observation from 7680 per c mm to 12,360 per c mm the percentage of lymphocytes rising from 30 to 62 per cent This gives an increase in the actual number of lymphocytes of from 2304 per c mm to 7663 per c mm

The sudden onset of the polyuria is interesting, the urinary output rising in one day from 54 oz to 110 oz. This may have been caused by a sudden infiltration of the pituitary, and certainly a rapid infiltration would be in keeping with the rest of the clinical picture. Thus the lymphatic glands were continually subject to periodic alterations of size, usually slowly, but on some occasions reaching a maximum in three days The association of diabetes insipidus with lesions of the pituitary is well known, the pars anterior being as a rule either not affected or only partially damaged In the present case an accurate geographical description of the pituitary lesion cannot be given, the infiltration being of a diffuse character

Summary

1 A case of aleukæmic leukæmia is described, with general lymphocytic infiltration of the organs, but without typical blood changes 2. Death was preceded by a sudden attack of diabetes insipidus, with considerable daily variation in severity, and associated with lymphocytic infiltration of the pituitary gland

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A CASE OF
MULTIPLE ANEURYSMS OF THE SPLENIC ARTERY

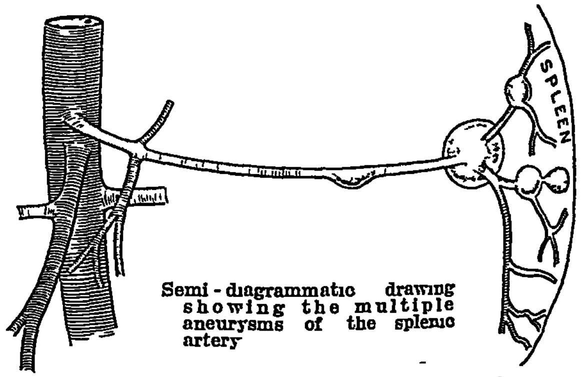
BY J ALLAN BERRY, M S DURH, F R C S EDIN,
MEDICAL SUPERINTENDENT, NAPIER HOSPITAL, N Z

ONLY a few cases of aneurysm of the splenic artery are mentioned in the literature, and owing to its rarity the present instance seems worthy of record

The patient, a thin spare woman, aged about 60, was admitted to the Napier hospital on Nov 4th, 1922, suffering from jaundice of about nine weeks' duration Previous to the onset of the jaundice there was no history of indigestion, but since its appearance there had been pain in the epigastrium shortly after meals, associated with vomiting On examination the patient was deeply jaundiced and a tender mass could be palpated in the gall-bladder X ray examination showed the presence of stones in the gall-bladder, and a barium meal showed the stomach to be normal There was no sugar in the urine and the Loewi test was negative

On Nov 17th an exploratory laparotomy was performed There was very little hæmorrhage at the operation, hæmostatic serum having been administered previously The gall-bladder was full of stones and was removed, and the common bile-duct drained Masses of glands were noted in the gastro-hepatic omentum. A microscopical examination of the gall-bladder demonstrated a carcinoma of its neck. Following the operation the patient's condition remained satisfactory until signs of cerebral embolism appeared and she died half an hour later

A limited post-mortem examination was made through the operation wound Hard masses of glands were found surrounding the supra-duodenal portion of the common bile-duct, and secondary deposits were present in the liver



Semi-diagrammatic drawing showing the multiple aneurysms of the splenic artery

The heart showed no signs of endocarditis, and there was very little atheroma of the thoracic aorta. The splenic artery was found to be the site of multiple aneurysms so that part of the abdominal aorta, with the vessels of the cœliac axis and the spleen, was removed

The accompanying diagram shows an abnormal arrangement of the cœliac axis and also shows the aneurysms About an inch before the splenic artery divided into its branches is a slight dilatation of the lower part of its circumference, while at the point of bifurcation is an aneurysm roughly circular in outline, about an inch in diameter, and having calcified walls Leading from this aneurysm are two vessels, on the superior branch after a course of about two inches is another aneurysm with calcified walls less than half an inch in diameter On the superior division of the two into which the inferior trunk divides are two more calcified aneurysms, one springing from the other, each a little less than half an inch in diameter

The X ray films did not show the shadows due to the calcified walls of the aneurysm, one showed the shadow due to the gall-stones, while the other, of a barium meal of the stomach, obliterated any shadows that might have been due to them

One of the latest cases on record is that of Hogler,[1] who reports a case which he thinks is the only one in which a correct diagnosis was made during life The symptoms were severe spinal pain with the development of a pulsating swelling in the left hypochondrium, over which a systolic bruit was heard The patient died of intercurrent pancreatic cancer

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CEREBELLAR ABSCESS IN AN ELDERLY WOMAN.

BY W S THACKER-NEVILLE, M D DUB,
F R C S EDIN,
OPHTHALMOLOGIST AND LARYNGOLOGIST, DARLINGTON GENERAL HOSPITAL.

THE case here described presented certain features of unusual interest

Mrs P, aged 71, had been treated as an abdominal case for some time She complained of earache in September, 1926, but recovered in a short time At the commencement of December she developed symptoms that were looked upon as having their origin in the abdomen

On *examination* on Jan 7th last I found the patient lying on her left side She complained of pain about her right ear and dizziness and vomiting if she moved, the vomiting being the most prominent symptom. The tympanic membrane showed a light reflex bright but shortened, and in the posterior superior quadrant a salmon-pink patch, like the centre patch seen in otosclerosis The tuning-fork tests showed middle-ear involvement Nystagmus of the

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[2] Blankenhorn and Goldblatt Jour Amer Med Assoc, 1921, lxxvi, 583

[1] Wien Arch f inn Med., August, 1920, p 543

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Dr. MCCANN, in a brief reply, pointed out how important in these cases was the evidence of the medical man who first saw the victim Unless the child was seen fairly soon, healing of the hymen took place. Puberty was the earliest period at which vulval penetration was possible, unless there was precocious development of the sexual organs

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A JOINT meeting of these Sections was held on Feb 25th, the chair being occupied by Dr J D ROLLESTON, President of the Section of Children's Diseases

Dr E W. GOODALL opened a discussion on

THE SERUM TREATMENT OF SCARLET FEVER

He began by explaining that before he had formed a conclusion as to the efficacy of the treatment he had ceased to have first-hand opportunities for testing it He assumed that the hæmolytic streptococcus of George and Gladys Dick was the true bacterial cause of the disease Since 1910 the case mortality for scarlet fever in the Metropolitan Asylums Board hospitals had only once been above 2 per cent —namely, in 1910 During the ten years that he had been at the North-Western Fever Hospital it was quite low, and in 1925 it was 1 01 per cent Hence in the matter of the saving of life there was little room for further improvement In most cases of diphtheria the condition was a toxæmia pure and simple, whereas in scarlet fever there was also bacteræmia It was not claimed he believed, that the scarlatinal antiserum was antibacterial as well as antitoxic The following points should be considered · (1) Was serum treatment better than any other ? (2) If so, how was this shown ? (3) Did the results make it possible to distinguish between the toxæmic and the septic symptoms ? (4) What was the correct dosage ? In some cities in the United States in recent years, there had been a comparatively high death-rate from scarlet fever In Eastern Europe and China the disease had recently been very severe At the Government Isolation Hospital at Pekin serum had been found of little value in the toxic form of the disease, though later a serum produced by a different method had been of some use Cushing, at the Alexandra Hospital, Montreal, had reported improvement after the use of convalescent serum for serious cases, and a number of observers had reported that it hastened the disappearance of symptoms The earlier the remedy was given the better and surer was the result ; it could hardly be expected to do much if given later than the fifth day. Of 56 patients to whom he had given this treatment four had died, but none from the uncomplicated disease Forty-one of the patients had received the serum in the first three days of their illness A study of these cases gave him the impression that a *prima facie* case had been made out in favour of the serum Twenty-four of the patients had attacks of serum sickness, but only one of these was severe , one had an abscess at the site of the injection Long ago he had seen good results in the disease from the use of a multivalent serum, probably from accidental presence of special hæmolytic streptococcus in the mixture The unit-dosage system of administration had not been adopted in this country, as the methods of standardising the toxin and serum had not been satisfactory In the United States the dosage was from 2000 to 10,000 units

Discussion

Dr. R A O'BRIEN said that he had only limited opportunities for judging clinically of the effects of the serum He had, therefore, obtained the views of the superintendents of several hospitals outside London, especially in the North, where the disease seemed to be of a more severe type Dr W T Benson, of the City Hospital, Edinburgh, concluded that the administration of antitoxic serum in the first 48 hours of the disease had a very favourable influence on the specific toxæmia of scarlet fever ; it relieved the more urgent symptoms of the acute stage, and seemed to reduce complications It did not seem to be an absolute safeguard against septic complications in convalescence In toxic cases the serum should be used either intravenously or subcutaneously at the earliest opportunity, and the dose should be repeated if necessary Dr Benson had treated 200 or 300 cases with the English concentrated serum, the usual dose being 10 c cm , 20 c cm was rarely required Serum rashes were troublesome Dr Benson was not, however, prepared to discharge his patients in the third week of convalescence because they had had the serum Dr. E H R Harries had informed him that for eight months the concentrated antitoxin had been used at the City Hospital, Birmingham, for all cases except the mildest Serum sickness was infrequent, and when it did occur it was but trifling In the average case a dose of 10 c cm sufficed

In Dr O'Brien's view the problem of scarlet fever was one of late morbidity. It was impossible to foretell what complications a patient with a mild attack might develop in the second or third week He did not find that the serum had any direct influence on the septic complications of the disease, but he would not feel justified in withholding serum from a severe case He had never known a child contract scarlet fever after having been rendered Dick-negative by antitoxin, even if repeatedly exposed to infection Dr O'Brien said that Dr Claude Rundle, of the Liverpool City Hospital, had used serum in about 100 cases, and there had been five deaths His opinion was that many of the patients would have died if they had not had the treatment All except one of the deaths were of patients with scarlet fever of the septic type who came under treatment late.

Dr F FOORD CAIGER said that he had not had the opportunity of trying the serum treatment as much as he would have liked, but the results following its use did not seem so far to have been very much better than those of earlier workers , the Warsaw results in 1894 had led to very great hopes for the future It was scarcely to be expected that the Dick serum alone would do much in the septic form of the disease He referred to the success of a multivalent serum for scarlet fever which was sent to him about 30 years ago by Prof A Besredka from Paris It was derived from 20 strains of scarlatinal cocci It was given to 44 patients who seemed sure to die, and the ultimate mortality amongst them was 36 per cent In the severe cases, in which it was given on the fourth or fifth day, the mortality was 23 per cent , of the patients who had it two days later 25 per cent died and amongst those who did not have it until the ninth day the mortality was 56 per cent.

The CHAIRMAN said that the case mortality from scarlet fever from 1874–79 was 13 9 per cent —exactly the rate given for Warsaw during the first 26 weeks of 1926 During the years following 1879 there had been a gradual fall in the mortality, so that in 1900 it was 3 per cent , and in the last report of the Metropolitan Asylums Board it had come down to 1 1 The disease was also mild in France, but in the north it seemed to be of a much more severe type He agreed that it was unnecessary to give serum to all patients with scarlet fever, especially as it might render them hypersensitive for a number of years He had, therefore, tried the treatment in only 60 cases These he divided into three classes (*a*) 23 cases in which benefit was marked and immediate , (*b*) 24 cases showing definite benefit from it , and (*c*) 13 in which no benefit followed, amongst which five deaths occurred Serum rash appeared in 26 cases, and in nine there was pyrexia, some constitutional disturbance, and secondary adenitis The doses varied from 10 c cm to 30 or 40 c cm and they were seldom repeated The Chairman raised the question whether earlier discharge of those cases which had the serum was closely resembling the gonococcus which had no relation to the disease. He thought that the law in relation to rape needed clearer definition; it did not keep pace with the advances in science. In most cases of alleged rape the charge should be one of indecent assault. The term "rape" should be restricted to cases in which penetration had been proved, or where considerable local injury had followed attempts at penetration.

Dealing with nubility, impotence, and sterility, Dr. McCann said that the law seemed to regard the female as a mere passive agent in the sexual act. He suggested that a nubile or marriageable woman was one whose sexual organs were normally developed or were without irremediable defect. The menstrual function was ignored in these words, for it could often be restored when absent. In one case both husband and wife seemed well developed but the marriage had not been consummated, and the judge pronounced a decree of nullity. Here a judicial warning would probably have had a salutary effect; sometimes friendly advice by the family doctor would obviate a judicial appeal later on. Impotence Dr McCann would define as the failure of the power to copulate, or failure of the power to generate. Both might be present in the same individual. The failure to distinguish between these two struck at the root of the confusion on the subject in legal medicine. Sometimes a decree of nullity had been obtained against a male by a female, and subsequently that male had become the father of a family. Works on legal medicine too frequently overlooked the psychical influence in sexual desire; it explained some cases of impotence, at least temporary impotence. Sometimes owing to male impotence methods of sexual excitation had been employed which had had an injurious effect on the nervous system of the female. Impotence he regarded as much more common in the female than in the male; yet the woman was regarded as the mere passive agent, and if her vagina would admit penetration, she would not succeed in a nullity suit. As to sterility, generative incapacity on the part of the female rarely came before the courts, perhaps because of difficulty in establishing its existence. A woman with normal sexual organs might be successfully impregnated by one man and fail with another. He was sure that a slightly undersized uterus would carry a fœtus successfully to the end of gestation.

A young woman engaged to be married consulted him because she had never menstruated. She had an imperforate vagina and no uterus could be detected. Her fiancé urged that a segment of the small intestine should be transplanted into the region of the vagina to produce an artificial vagina. Dr McCann advised against such an operation as it was dangerous and unjustifiable, and urged giving up the idea of marriage. She consulted another surgeon, who performed the operation, and it proved fatal.

Going on to speak of venereal disease and divorce, Dr McCann said it was very necessary that the doctor who was first consulted should make a thorough examination of his patient, male or female, or consult with an expert without loss of time, as it might be difficult, even impossible, to obtain evidence at a later date. To establish the diagnosis of gonorrhœa in the female it was essential that secretion should be obtained for examination from the urethra, from the glands of Bartholin, or from the cervix uteri. Secretion from the vagina for this purpose was useless. Yet in a recent case smears taken from the vagina were offered as evidence. In order to detect the gonococcus, a sterilised platinum needle should be used to obtain specimens for microscopical examination, as well as to inoculate the culture medium. The science of bacteriology had not yet reached the degree of perfection which enabled a medical man to make positive assertions in the witness-box; he could only show that he had investigated a particular case with every care. The same applied to the diagnosis of syphilis.

Removal of both ovaries in a young woman might be followed, in the course of years, by such shrinking of the vagina that, in the event of her subsequent marriage, sexual intercourse might become difficult or impossible. Hysterectomy did not always banish sexual desire, but it interfered with sexual pleasure, for without a uterus there could be no orgasm. The question of operations on the female genitalia after marriage was an important one. If a woman who had undergone hysterectomy married without telling her future husband the nature of the operation she had undergone, could the man obtain a decree of nullity? A man who married a woman pregnant by another man could not obtain relief. Dr McCann thought that the law should be altered to include the cases where the knowledge of a mutilating operation or the existence of pregnancy by another male was withheld. Many operations, moreover, left psychical effects of far-reaching importance, and this aspect would demand more attention in the future, as it loomed large in the patient's mental horizon.

Discussion

Dr M. I. FINUCANE agreed that the legal test as to whether a woman was a virgo intacta was a ridiculous one from the doctor's point of view.

Sir TRAVERS HUMPHREYS said that he was not aware that the law required that in order to justify a conviction for rape there should have been penetration of the vulva. Judges said that such a charge could not hold unless there had been some penetration, and left the matter there. He did not think that lawyers would quarrel with a doctor because he could not be quite sure whether a particular woman was a virgo intacta. He had been glad to note the careful way in which most medical witnesses gave their evidence in court, and the fact that they did not attempt to dogmatise was in their favour. A woman could be convicted of procuring a girl to become a prostitute even though the girl might be a virgo intacta. And a prostitute meant a female who, for money, gave her body to men for indecent practices, which did not necessarily include copulation.

Sir BERNARD SPILSBURY expressed his agreement with what Sir Travers Humphreys had said on the subject of penetration; he had always conceived that what was meant was some degree of penetration, not necessarily vulval. He asked at what age vulval penetration was said to be possible; did it date from puberty, or was there a period antecedent to that when it was possible? He agreed with what Dr McCann had said about diagnosis of gonorrhœa in the female. It was difficult to get medical men to take those precautions which would enable pathologists to carry out a proper bacteriological examination. In suspected gonococcal infection of the female genital organs, evidence should not be given without complete bacteriological proof, in cultures as well as smears from any discharge. The difficulty was even greater in the dead body, when the gonococcus had died. He related a case in which, in a female child, gonorrhœa was suspected because of a vaginal discharge, and it was proved that the discharge was due to a long antecedent inflammation caused by a thread-worm. He hoped soon to lay before the Society the result of some investigations he had been making on a means of distinguishing between congenital conditions and those which were the result of injury. The elastic tissue of the skin was not re-formed after an injury had been sustained sufficient to cause a scar.

Mr W. G. EARENGEY did not agree with those who asked for another definition of rape for legal purposes. The doctor could tell whether violence had been used in a given case, especially as most of the cases came before the doctor soon after the alleged attempts. And he did not think that judges were far behind the advances of science.

The CHAIRMAN thought that there was no great difficulty in deciding about penetration; usually there was a good deal of local evidence of violence. An important point was that these cases of attempted rape were surrounded by such a feeling of horror that the scientific evidence often was not given calm consideration.

Dr McCANN, in a brief reply, pointed out how important in these cases was the evidence of the medical man who first saw the victim Unless the child was seen fairly soon, healing of the hymen took place. Puberty was the earliest period at which vulval penetration was possible, unless there was precocious development of the sexual organs

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Dr. F. FOORD CAIGER said that he had not had the opportunity of trying the serum treatment as much as he would have liked but the results following its use did not seem so far to have been very much better than those of earlier workers: the Warsaw results in 1894 had led to very great hopes for the future. It was scarcely to be expected that the Dick serum alone would do much in the septic form of the disease He referred to the success of a multivalent serum for scarlet fever which was sent to him about 30 years ago by Prof A Besredka from Paris It was derived from 20 strains of scarlatinal cocci It was given to 44 patients who seemed sure to die and the ultimate mortality amongst them was 36 per cent In the severe cases, in which it was given on the fourth or fifth day, the mortality was 23 per cent ; of the patients who had it two days later 25 per cent died, and amongst those who did not have it until the ninth day the mortality was 56 per cent.

The CHAIRMAN said that the case mortality from scarlet fever from 1874–79 was 13 9 per cent —exactly the rate given for Warsaw during the first 26 weeks of 1926 During the years following 1879 there had been a gradual fall in the mortality so that in 1900 it was 3 per cent, and in the last report of the Metropolitan Asylums Board it had come down to 1·1 The disease was also mild in France but in the north it seemed to be of a much more severe type. He agreed that it was unnecessary to give serum to all patients with scarlet fever especially as it might render them hypersensitive for a number of years He had, therefore, tried the treatment in only 60 cases These he divided into three classes: (a) 23 cases in which benefit was marked and immediate; (b) 24 cases showing definite benefit from it; and (c) 13 in which no benefit followed, amongst which five deaths occurred. Serum rash appeared in 26 cases, and in nine there was pyrexia, some constitutional disturbance, and secondary adenitis The doses varied from 10 c.cm. to 30 or 40 c cm, and they were seldom repeated. The Chairman raised the question whether earlier discharge of those cases which had the serum was closely resembling the gonococcus which had no relation to the disease. He thought that the law in relation to rape needed clearer definition, it did not keep pace with the advances in science. In most cases of alleged rape the charge should be one of indecent assault. The term "rape" should be restricted to cases in which penetration had been proved, or where considerable local injury had followed attempts at penetration.

Dealing with nubility, impotence, and sterility, Dr McCann said that the law seemed to regard the female as a mere passive agent in the sexual act. He suggested that a nubile or marriageable woman was one whose sexual organs were normally developed or were without irremediable defect. The menstrual function was ignored in these words, for it could often be restored when absent. In one case both husband and wife seemed well developed but the marriage had not been consummated, and the judge pronounced a decree of nullity. Here a judicial warning would probably have had a salutary effect; sometimes friendly advice by the family doctor would obviate a judicial appeal later on. Impotence Dr McCann would define as the failure of the power to copulate, or failure of the power to generate. Both might be present in the same individual. The failure to distinguish between these two struck at the root of the confusion on the subject in legal medicine. Sometimes a decree of nullity had been obtained against a male by a female, and subsequently that male had become the father of a family. Works on legal medicine too frequently overlooked the psychical influence in sexual desire, it explained some cases of impotence, at least temporary impotence. Sometimes owing to male impotence methods of sexual excitation had been employed which had had an injurious effect on the nervous system of the female. Impotence he regarded as much more common in the female than in the male, yet the woman was regarded as the mere passive agent, and if her vagina would admit penetration, she would not succeed in a nullity suit. As to sterility, generative incapacity on the part of the female rarely came before the courts, perhaps because of difficulty in establishing its existence. A woman with normal sexual organs might be successfully impregnated by one man and fail with another. He was sure that a slightly undersized uterus would carry a fœtus successfully to the end of gestation.

A young woman engaged to be married consulted him because she had never menstruated. She had an imperforate vagina and no uterus could be detected. Her fiance urged that a segment of the small intestine should be transplanted into the region of the vagina to produce an artificial vagina. Dr McCann advised against such an operation as it was dangerous and unjustifiable, and urged giving up the idea of marriage. She consulted another surgeon, who performed the operation, and it proved fatal.

Going on to speak of venereal disease and divorce, Dr McCann said it was very necessary that the doctor who was first consulted should make a thorough examination of his patient, male or female, or consult with an expert without loss of time, as it might be difficult, even impossible, to obtain evidence at a later date. To establish the diagnosis of gonorrhœa in the female it was essential that secretion should be obtained for examination from the urethra, from the glands of Bartholin, or from the cervix uteri. Secretion from the vagina for this purpose was useless. Yet in a recent case smears taken from the vagina were offered as evidence. In order to detect the gonococcus, a sterilised platinum needle should be used to obtain specimens for microscopical examination, as well as to inoculate the culture medium. The science of bacteriology had not yet reached the degree of perfection which enabled a medical man to make positive assertions in the witness-box; he could only show that he had investigated a particular case with every care. The same applied to the diagnosis of syphilis.

Removal of both ovaries in a young woman might be followed, in the course of years, by such shrinking of the vagina that, in the event of her subsequent marriage, sexual intercourse might become difficult or impossible. Hysterectomy did not always banish sexual desire, but it interfered with sexual pleasure, for without a uterus there could be no orgasm. The question of operations on the female genitalia after marriage was an important one. If a woman who had undergone hysterectomy married without telling her future husband the nature of the operation she had undergone, could the man obtain a decree of nullity? A man who married a woman pregnant by another man could not obtain relief. Dr McCann thought that the law should be altered to include the cases where the knowledge of a mutilating operation or the existence of pregnancy by another male was withheld. Many operations, moreover, left psychical effects of far-reaching importance, and this aspect would demand more attention in the future, as it loomed large in the patient's mental horizon.

Discussion

Dr **M. I. Finucane** agreed that the legal test as to whether a woman was a virgo intacta was a ridiculous one from the doctor's point of view.

Sir **Travers Humphreys** said that he was not aware that the law required that in order to justify a conviction for rape there should have been penetration of the vulva. Judges said that such a charge could not hold unless there had been some penetration, and left the matter there. He did not think that lawyers would quarrel with a doctor because he could not be quite sure whether a particular woman was a virgo intacta. He had been glad to note the careful way in which most medical witnesses gave their evidence in court, and the fact that they did not attempt to dogmatise was in their favour. A woman could be convicted of procuring a girl to become a prostitute even though the girl might be a virgo intacta. And a prostitute meant a female who, for money, gave her body to men for indecent practices, which did not necessarily include copulation.

Sir **Bernard Spilsbury** expressed his agreement with what Sir Travers Humphreys had said on the subject of penetration; he had always conceived that what was meant was some degree of penetration, not necessarily vulval. He asked at what age vulval penetration was said to be possible; did it date from puberty, or was there a period antecedent to that when it was possible? He agreed with what Dr McCann had said about diagnosis of gonorrhœa in the female. It was difficult to get medical men to take those precautions which would enable pathologists to carry out a proper bacteriological examination. In suspected gonococcal infection of the female genital organs, evidence should not be given without complete bacteriological proof, in cultures as well as smears from any discharge. The difficulty was even greater in the dead body, when the gonococcus had died. He related a case in which, in a female child, gonorrhœa was suspected because of a vaginal discharge, and it was proved that the discharge was due to a long antecedent inflammation caused by a thread-worm. He hoped soon to lay before the Society the result of some investigations he had been making on a means of distinguishing between congenital conditions and those which were the result of injury. The elastic tissue of the skin was not re-formed after an injury had been sustained sufficient to cause a scar.

Mr **W. G. Earengey** did not agree with those who asked for another definition of rape for legal purposes. The doctor could tell whether violence had been used in a given case, especially as most of the cases came before the doctor soon after the alleged attempts. And he did not think that judges were far behind the advances of science.

The **Chairman** thought that there was no great difficulty in deciding about penetration; usually there was a good deal of local evidence of violence. An important point was that these cases of attempted rape were surrounded by such a feeling of horror that

Dr. P. F WATKIN said he had found lotio calaminæ very useful, and for tropical ulcerations he recommended irrigation by dropping methods or by soaking the leg for hours in a bath. The chief features of treatment were cleanliness, rest, and the application of an antiseptic, such as perchloride with a little salt.

Dr STEBBING agreed that the problem was how to keep the part clean. The bath was not very comfortable, and he had found boric compresses better when once the skin was clean. All kinds of hyperæmic methods were useful—kaolin, glycerine pastes radiant heat, massage, and electricity. If the scar were soft and could be pinched up recurrence was unlikely.

Dr. A. P. BERTWISTLE said that traumatic ulcers resulted from bruises and abrasions which were so insignificant that they were neglected. The causes of chronicity in an ulcer were: (1) Poor blood-supply. The deep fascia, the duty of which was largely to carry and support blood-vessels, joined with the periosteum of the tibia over its subcutaneous border, so that there were few vessels in the area. (2) Such ulcers became fixed at an early stage to the bone which cut off the vascular supply to their base. If periostitis did not occur as the result of the blow, it would develop later. (3) The exposed position militated against rest. (4) The absence of fat in the subcutaneous fascia meant that there was no cushion to break the impact of a blow or make the part elastic. (5) The dependent position was not conducive to a good blood-supply. Abrasions, he said, should be allowed to dry, the resulting eschar being the best protective for them. In America they had tried electric drying as in shampooing. If dirt were ingrained hydrogen peroxide was beneficial for a day after which the wound should be allowed to dry. Lotio calaminæ worked like a charm in some cases. Rest in bed was essential if there were varicose veins. Iodoform disguised the smell of putrefaction, but iodine was bad and caused much pain. Boric ointment in a paraffin basis was useful at certain stages.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS

A MEETING of this Section was held on Feb. 4th, Dr LOUIS CASSIDY (in the absence of the President) in the chair, when Dr BETHEL SOLOMONS read a communication entitled

Rupture of the Uterus Treated by Plugging the Rent

The patient was aged 35 and had had three normal labours. During the second stage of labour her doctor had given her 1 c cm. of pituitrin and as there was no advance after an hour had applied forceps and delivered a stillborn child. Efforts to express the placenta and to remove it manually had failed.

On admission she was pulseless and in a condition of profound shock, just conscious. Routine treatment showed little reaction and the placenta was sought for. The cervix was closed, but on following the cord it was found that the uterus was separated from the fornix on the left side and that the placenta was among the intestines; it was removed. Intestines appeared at the vaginal vault and the rent was plugged with a large tampon of iodoform gauze. Two days later symptoms of intestinal obstruction appeared, and the gauze was removed. For 14 days she got on well, but there was always some distension without absolute rigidity. Symptoms of slight peritonitis then appeared and the abdomen was drained; two pints of foul sero-sanguinous fluid escaped and a drainage-tube was inserted.

Since then, said Dr. Solomons she has progressed well, but there was still some discharge from the wound, which it was hoped would clear up with ultra-violet rays. This patient would have died had laparotomy been done. she had lived after the treatment of plugging. Plugging was a valuable aid to obstetrical technique and could be carried out by the general practitioner. The rupture had occurred probably from the overdose of pituitrin in the second stage of labour. 1 c cm. was far too large a dose. If pituitrin was given at all, two or three minims should suffice, and it should only be given in selected cases.

The CHAIRMAN agreed that when a patient came to hospital in a condition of shock, as in this case, there was nothing to be gained by laparotomy. Most of these cases, if they did not die of shock, died from sepsis within ten days. He mentioned the statistics published by Döderlein from cases of rupture of the uterus at the clinic at Munich during the last 50 years, when there had been 50 cases. Seven of the cases had been untreated and had died. Ten had had laparotomy performed, and of these 60 per cent had recovered. The other cases had been treated in various ways. Eight of them had been treated in a way similar to that described by Dr Solomons and three had recovered. On the whole the average of recovery had been between 40 and 50 per cent. during the last 50 years. He thought that in this case the large amount of pituitrin which had been given was probably responsible for the condition. If cases were not too shocked he thought they were better treated by laparotomy; but a great deal depended on the method by which the shock had been brought about, and also on the time which has elapsed since the rupture had taken place and when the patient was seen.

Mr W. PEARSON said that it was very difficult in this case to decide what to do after the primary shock had been overcome. It was a question of either peritonitis or intestinal obstruction. It proved, however, to be an obstruction, and the patient had done fairly well for a fortnight. After that time the temperature had risen and the abdomen had become distended and soft; but it was plain that it was not an obstruction, as the bowels moved if purgative or enemata were given. There was a good deal of dullness in the right iliac fossa, extending across to the middle line, and the probability was that it was a case of mild peritonitis. The abdomen was opened, and peritonitis was found; there was a great deal of turbid fluid and also adhesions the whole way across to the abdominal wall.

Dr CANNON said that these cases were rare. He personally had only come across two. One was caused by the injudicious use of pituitrin, and the baby had died. The other was a case of spontaneous rupture from a previous scar. He did not think that there was any great danger of sepsis if the gauze was left on for 10 or 15 days. He thought that if the fœtus was completely in the peritoneal cavity it would be difficult to deliver the baby, unless the scar was extended; and it would add to the shock to deliver the baby per vaginam. In these cases he thought laparotomy should be done.

Prof DAVIDSON asked where the rupture was in this case; was it in the uterus or not? He had had three cases of rupture of the uterus, two following version and one following a breech. In the first case the rupture had been discovered when trying to extract the placenta; the rupture was in the fornix. The placenta was removed by traction of the cord and the hand was never inserted at all. He thought that this was a very good point in technique, as in this way it might be possible to avoid introducing sepsis into the abdominal wall. In all his cases the wound had healed. He asked if there was any possibility of the collection of fluid in the abdomen being urine, as he thought perhaps the bladder had been injured by the rupture, as sometimes the bladder was concerned in cases of ruptured uteri.

Dr SOLOMONS, in reply, said that he had met three cases of rupture of the uterus in the past three months—the one he had reported, which lived; one of quiet rupture which died; and another one which occurred on the previous day where there was a spouting uterine artery. In this last case hysterectomy had been necessary and the patient was still alive. Plugging was the best treatment when possible, but there were some cases in which laparotomy alone could be done. The practitioner must choose his case for justifiable without a bacteriological examination It was reported that the *Streptococcus scarlatinæ* persisted for some three to six weeks after the symptoms had subsided

SIR **FREDERICK ANDREWES** discussed the question whether there was such a disease as scarlet fever clinically—i e, whether it was a sharply defined entity, or whether it shaded off into other streptococcal manifestations, so that it was difficult to say what was scarlet fever and what was not He had seen, in 35 years, hundreds of cases of doubtful scarlet fever from the wards, the origin of the infection being undetermined The same sort of difficulty was encountered in regard to the bacteriological evidence Was it always the same kind of streptococcus which caused recognisable scarlet fever? Dr Griffith had declared that there were three different serological types of streptococci which could be obtained from the throats of scarlet fever patients, and the two sorts which were commonest in this country were not those which seemed to be commonest in the United States Might it not be that in scarlet fever there were several different races of streptococci which formed one common toxin? A lady who was working in his laboratory had last summer got what was, clinically, acute rheumatic fever She had been given some of Dr O'Brien's concentrated antiscarlatinal serum with strikingly beneficial results When, later, she had a relapse, another dose of it caused the temperature to come down to the normal in four hours and the pain to disappear from the joints

Dr **ALEXANDER JOE** agreed that in London, owing to the mildness of the infection, there was little opportunity for judging of the clinical value of this serum; in Edinburgh the disease was definitely more severe Until he came to London he had not realised what serum sickness was, he did not know whether this was due to the greater sensitiveness of the children in the south or to the type of serum supplied for London. He thought a reason why good results did not follow in septic cases was that the serum was generally used too late As to Sir Frederick Andrewes's remarks, Dr Joe had heard a laryngologist say that after mastoid operations his patients often got erysipelas, whereas after tonsillectomies a much commoner sequel was scarlet fever

Dr **C J MARTIN** asked whether there was experience of an epidemic spread of any other form of streptococcal infection, such as occurred in scarlet fever

Dr **J E MCCARTNEY** referred to the case of a hospital maid who had scarlet fever, and contracted erysipelas when she was partially recovered from the first infection, After that, when the temperature came down, she had pyæmia and a hæmolytic streptococcus was isolated from the blood Much more work was needed before laws could be laid down about the degree of infectivity of cases of scarlet fever. Much light might be gleaned by a close study of the organisms responsible for the failures

Dr **H J PARISH** described experiments on the titration of scarlet fever antitoxin in rabbits (vide THE LANCET, Jan 8th, p 71)

Dr **GOODALL** and Dr. **O'BRIEN** replied

POST-GRADUATE HOSTEL.

THE final meeting of the Hostel was held at the Imperial Hotel on Feb 24th, when Sir **D'ARCY POWER** opened a discussion on

Chronic Ulcers of the Tibia.

These he grouped into non-infective, infective, and malignant Of the non-infective, he said, the commonest were the traumatic and the varicose Less often seen, and nearly always in women, was the small rather punched-out ulcer which gave very great pain, probably because there was a nerve-ending in the centre These could be cured by blistering or painting with silver nitrate First among the infective was the tuberculous, for the syphilitic was by no means the commonest, as was often supposed He had seen enormous numbers of osteomyelitic ulcers in Ireland, but fewer in this country. The infection started in the bone, extended through the skin, and ended as a chronic ulcer, usually associated with sinuses Another and different type of ulcer was that associated with gangrene He had seen large numbers of carcinomatous ulcers in regions where cancer appeared to be endemic Malignant ulcers of the tibia were apt to go on for a very long time before killing the patient

Treatment

Dr **G. F STEBBING** spoke of his experience of ulcers in a Poor-law hospital where very large numbers were encountered For over 15 years his institution had kept a ward of 90 beds for nothing else The important points in treatment were cleanliness and early attention An injury might heal quickly, but the resulting scar often had not enough blood-supply to stand active life, every little knock started the trouble again and finally periostitis set in Such cases did best if the scar were excised and the area grafted on to the deep fascia Much more difficult to treat were ulcers arising on a leg with faulty circulation, as with varicose veins and phlegmasia One third of his cases had been in women with a history of "white" leg after parturition, and in such women he had seen ulcers extending from knee to ankle and all round the leg Amputation was the only treatment for most of them, but even ulcers of this class might heal after a time with the leg at rest in a raised position and with antiseptic dressings which were not changed too often The complication of conservative treatment was that stasis produced adhesions in the tendon sheaths, with the result that the ankle appeared ankylosed, though really the lameness was due to matting of the tendons Therefore it was not really worth wasting time healing up the ulcer if amputation could be performed Some of the cases had septic infection through the deep fascia, and pus poured from the ulcer. The varicose ulcer was often associated with only a very slight degree of varicosity, but the circulation was always poor The ulceration seemed to depend largely on the recurrent phlebitis that affected the varicose veins It healed quickly and the leg kept well if the patient could be persuaded to sleep and spend a part of each day with her foot raised The pain was ischæmic in nature and was greatly relieved by a wedge under the mattress, 9 inches high at the broad end Hoskins made a special bed for such cases Dr Stebbings thought that parathyroid was not of much use An elastic stocking was better than bandages if the patient could afford to have a really well-fitting one, renewed about twice a year If there were varicose veins about the knee the stocking must be in two pieces so that bending the knee did not produce anæmia Unfortunately patients had to earn their living, the leg got knocked, and the ulceration returned

The Poor-law officer, Dr Stebbing continued, saw very little tuberculous ulceration, and syphilitic ulcers, like all tertiary syphilitic phenomena, were becoming rarer and rarer He had seen many of the so-called gangrenous ulcers, but they were not gangrenous in the ordinary sense of the term The condition began as a little spot which rapidly spread over the leg until the skin sloughed and left an ulcer This healed well and rapidly if treated with antiseptics, but if it were treated as an indolent ulcer for a long time and got a hard edge it would do badly, and matting of the tendons would probably occur Osteomyelitic ulcers were becoming more uncommon as treatment improved; nowadays they were more often seen over the femur than over the tibia One type of malignant ulcer began as a papule and grew without previous ulceration, starting apparently as a true carcinoma of the skin. a commoner form began on the site of a varicose ulcer and was seen also on the foot, even on the great toe, at the site of some chronic sepsis such as a bunion

Reviews and Notices of Books.

ARTIFICIAL LIGHT TREATMENT OF CHILDREN

By KATHERINE M L. GAMGEE, M R C S , L R C P., D P H London H K Lewis and Co , Ltd 1927 Pp. 172 10*s* 6*d*

THIS book embodies the results of the author's experience in a children's light clinic in an industrial town and contains much information which will be of practical assistance to all who wish to undertake light treatment for children A summary is given of the essentials of the rationale and technique of artificial heliotherapy and of the routine administration of the clinic The advantages and disadvantages of the carbon arc, mercury-vapour bath, and tungsten arc are clearly indicated , the author considers that, when the apparatus must be limited the air-cooled mercury-vapour bath is the most generally useful lamp for the treatment of children The part of the book devoted to clinical results is largely concerned with the treatment of rickets and spasmophilia The results obtained were undoubtedly good, as is demonstrated by the photographs and radiograms shown The efficacy of artificial heliotherapy in cases of this type will hardly be called in question ; it is, perhaps, a defect of the book that other types in whom the indication for radiation is less obvious are not discussed more critically In the classification of cases suitable for treatment "nervous children" are included, but the book yields no real evidence that neuroses of a non-spasmophilic nature are susceptible to radiation Still more questionable is the inclusion of the "mentally dull and backward child and also the child that gives signs of being mentally abnormal or mentally deficient" No further reference is made to cases of this type, and we suggest that claims should not be made unless supported by definite evidence, or disappointment may be caused An interesting feature of the course of many rickety patients was the progressive increase in hæmoglobin percentage Due prominence is given to the dangers of radiation in children with active tubercle

This book is clearly written, adequately illustrated, and of convenient size, and should well fulfil the purpose for which it was written

X RAY APPARATUS, ITS ARRANGEMENT AND USE

By P K BOWES, M.A , B Sc Examination for M S R (Dist), Hon Radiographer to the Kent and Canterbury Hospital, Canterbury London. H K. Lewis and Co , Ltd 1926 Pp 196 7*s* 6*d*

THOUGH this book is primarily written for those taking the various examinations for radiographers, it should prove useful to doctors who want to get a general idea of the way in which the component parts of an X ray apparatus work, and how it is that they sometimes do not work He will find here not only this information but also to what general uses the X rays, once produced, may be put Other chapters are devoted to a description of the means employed to control and measure the output of X rays from the bulb

The chapter on the nature of X rays is less satisfactory than the rest In speaking of the electron, the author says, "the charge on each particle also is invariable and is that carried by the hydrogen ion in liquid electrolysis," and, in talking about corpuscular rays, the reader is told, "the corpuscular rays have been found to be negatively charged particles called corpuscles which are given off in large quantities at very great speed" From these two statements, one would hardly guess at the identity of electron and corpuscle Some of the clear line drawings are spoilt by the attempt of the author to draw circles with some instrument other than a compass But on the whole defects are few and of minor importance in a reasonably priced volume which covers the interests of an increasing number of people.

THE TUBERCULOUS PATIENT

Handbuch der Tuberkulose—Fursorge By Dr KARL HEINZ BLUMEL (Halle) and others Munich . J F Lehmanns 1926 Vol I, pp 457 M 249. Vol II , pp 533 M 270.

THIS work is "a comprehensive text-book on the care and control of the tuberculous patient" Each section is allotted to an expert

The first volume is divided into two portions, the former dealing with the social and preventive medicine aspects of the subject, the latter being pathological and clinical The hiatus between the two parts is distinct and if a second edition is called for they might with advantage be issued as separate volumes The book opens with a historical survey of the subjects and then deals, in succession, with German legislation, statistics, the achievements of the antituberculosis campaign, and the regulation, management, and diagnosis of cases in the tuberculosis dispensaries Early pioneer work and the later and more elaborate forms of administrations are described The general editor, Dr Blümel, is justifiably proud of the German pioneers who blazed the trail in the exploration of tuberculosis—Brehmer, Koch, Rontgen, and Flugge A long section of more than 80 pages is devoted to the statutory provisions which Germany has enacted since 1884 for dealing with invalidity, infant and juvenile welfare work, industrial hygiene, and housing in relation to tuberculosis. Especially important is a section dealing with the recent legislation of 1924 with regard to social insurance and concluding with a critical survey of the aim of social legislation in relation to tuberculosis A short essay on notification in Germany and other countries is also included The death-rates from tuberculosis in the different German states are given up to and including the year 1924 As might be expected, these figures show very high peaks for the war years—culminating in a record in 1919, and slowly returning to pre-war figures thereafter The work of the antituberculosis campaign is shown in a specimen financial budget of the German Central Committee for 1925–26 and in various specimen forms for the compiling of statistics of cases treated These forms are similar to those used in dispensaries in this country Case sheets, the arrangement and organisation of the dispensaries, the provision and management of X ray plants in dispensaries, and other questions which exercise the minds of tuberculosis officers all receive careful consideration Little need be said with regard to the clinical portion of the volume, for books on this subject are now legion and it is becoming more and more difficult to set old facts in a new light Suffice it to say that the salient facts are clearly and concisely set forth with due emphasis on the right points For the English reader the preventive medicine sections are the most interesting as a demonstration of the thorough way in which the German antituberculosis campaign is carried out Numerous graphs, diagrams, illustrations, and useful bibliographies are included A spot map or geographical diagram illustrating the organisation of the preventive work in town and country in Germany would have been useful to the foreign reader.

The second volume contains sections on the prevention of tuberculosis, on treatment from the point of view of the social worker, on dispensary statistics, on education, and on the antituberculosis campaign in other countries The discussion on prevention is based on the modern conception of a primary infection in childhood It is a careful analysis of the "contact" question, from which the writer draws the conclusion that chronic disease in childhood is generally an intrafamiliar and acute disease an extrafamiliar infection The chapter on housing treatment In the one he had described the uterus was completely separated from the vaginal vault, and he believed that the gauze had temporarily obstructed the bowel—a complication he had never before encountered At the time of the second operation ileus from the peritonitic fluid was the trouble

Dr **Solomons** also read notes on Epistaxis as a Symptom of Toxæmia of Pregnancy

Prof **Davidson** showed a case of Salpingo-vesical Fistula

EDINBURGH OBSTETRICAL SOCIETY.

At a meeting of this Society held on Feb 9th Prof R. W **Johnstone**, the President, took the chair, and Dr **Farquhar Murray** (Newcastle) read a paper on

Rupture and Inversion of the Uterus

He objected to the terms complete and incomplete rupture, suggesting that they should be replaced by intra- and extra-peritoneal rupture The chance of rupture of the scar of an old Cæsarean section was, he thought, greatly exaggerated, but it should be kept in mind, and in such a case the uterus should be spared all possible stress at subsequent confinements During the last five years he had performed or had records of 50 repeat sections, and none had shown evidence of imminent rupture Though in some of them the area of scar tissue was thinner than the surrounding muscle, it was in all cases tough and firm If a scar should rupture or become thinned out at a future labour, the wound edges should be excised before resuture so that healthy muscle would be reached on both sides of the wound The worst traumatic ruptures seemed to occur after versions performed when the uterus was tightly contracted and Bandl's ring greatly in evidence To avoid such a risk, perforation of the head, followed by compression with the hand, was advisable, a careful version then being performed, with this treatment the lower uterine segment would not be subjected to so great a strain After a difficult version manual removal of the placenta was also desirable, partly, diminish the risk of post-partum hæmorrhage, but mainly in order to explore the uterus thoroughly so that any rent in its wall might be detected Dr Murray was surprised at the degree of trauma to the cervix caused by spontaneous deliveries, even when the fœtus was as premature as at the seventh month Some of these lacerations spread up to the body of the uterus and cause repeated abortions and premature labours Curettage did not help the furtherance of pregnancy and cervical repair might have to be done As the extent of the tear could not be definitely determined from below and dissection from the vagina was apt to imperil the ureter and might tear into the uterine vessels, Dr Murray recommended an abdominal operation for the efficient suture of the tear

Describing a number of cases of inversion of the uterus, Dr Murray said that he had difficulty in accepting the usual explanations of its causation, as he had noted how difficult it was to cause inversion of the uterus directly with the hands in a Cæsarean section and also how often a vigorous Credé was practised without any untoward result He thought that the arrangement of the uterine muscle played a definite part in the process, as in several Cæsarean sections he had noted that the thick part of the uterus was the centre whereas the upper part of the uterus was nearly as thin as the lower uterine segment It would be, therefore, quite easy for the thin portion to be pushed, pulled, or even spontaneously invaginated and gripped by the thicker zone of muscle

Dr **Ralph Lodge** then read a communication on

Hydatidiform Mole,

in which he reviewed 37 cases treated in the Royal Infirmary or Royal Maternity Hospital since 1922 About 70 per cent of the cases, he said, occurred in the third decade of life and only 8 per cent after the age of 40 years, 30 per cent occurred in primi gravidæ The clinical features noted were mostly those usually described, though a "brownish discharge" was often complained of Severe vomiting was a common symptom and it was interesting to note that 50 per cent of the patients had albuminuria The Wassermann reaction was negative in all cases Nineteen cases, he said, had been followed up and only one had developed chorion epithelioma He had discovered by investigating the records of the various pathological laboratories in the city that in Edinburgh and the surrounding districts hydatidiform mole was extremely rare, only six cases having been reported upon in nearly ten years He thought that immediate curettage after expulsion of a mole should not be done, as his statistics of treatment showed that this operation was frequently followed by a morbid convalescence, whereas if any symptoms should warrant curettage and this were done at a later date the morbidity was not nearly so great He found that the complications which were most common after expulsion were first and foremost, sepsis (46 per cent having a morbid convalescence), and then hæmorrhage (8 per cent. having severe hæmorrhage), and then development of chorion epithelioma (1 case) Perforation of the uterus did not occur in the series Vaginal hysterotomy had proved satisfactory and abdominal hysterotomy was also useful sometimes, especially when the uterus was as large as with a full-time pregnancy

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH

On Feb 22nd Dr A Rowand read a paper on Oxaluria, with special reference to its occurrence in children He pointed out that the term oxaluria was of very vague significance and was applied to a variety of conditions As a condition with clinical symptoms it was first described about the middle of last century A chronological survey of the opinions expressed in clinical text books from the days of Golding Bird showed that the tendency had been to lay less and less stress on any possible causal connexion between the oxalates and the general symptoms, and to regard them as having a common origin in some disorder of metabolism The possible sources of oxalates were various, and therefore it could not be said that the presence of oxalate crystals in the urine indicated one definite error of metabolism Moreover, there were individual idiosyncrasies Of two individuals on the same diet one might show a large deposit of oxalates in the urine, while in the urine of the other no oxalates could be found This might happen even when substances rich in oxalic acid, such as rhubarb, were being taken Again, the occurrence of hæmaturia was apt to be regarded lightly if many oxalate crystals were present in the urine, but probably in a healthy urinary tract irritation by the crystals was unlikely to cause such a serious symptom All writers laid stress on the danger of the formation of calculi but this was not solely dependent on the amount of calculous material in the urine Benjamin Moore had shown that in the core of a calculus some colloidal substance was present in association with the calcium oxalate It was not suggested that the occurrence of oxalate crystals in the urine of children was of greater significance than in adults But the urine of a large number of children who came to the institute for periodic observation provided a valuable field for study Specimens were examined at every visit, and as they were voided at the institute it would be possible to determine the extent to which the presence of oxalate crystals in fresh urine was associated with symptoms of impaired health The investigation had been in progress for about a year In only 14 per cent of the specimens had oxalate crystals been found though 30 per cent to 40 per cent was the figure commonly given This lower percentage might be due to the fact that all the specimens were freshly voided, and that a large proportion of the children were in good health In about 20 per cent of cases traces of protein had been associated with the oxalates Red blood cells were only found in a very small proportion of the specimens There was some ground for believing that not only the number but the nature of the crystals might be of special significance Refractile particles and minute octohedra appeared to be especially associated with symptoms of disordered metabolism and impaired health But the investigation had not proceeded far enough to make it justifiable to pronounce any definite opinion on this matter

THE LANCET.

LONDON: SATURDAY, MARCH 5, 1927

OGRESS IN RESEARCH ON FOOT-AND-MOUTH DISEASE

The Foot-and-Mouth Disease Research Committee, which the present Chairman is Dr Charles J rtin, has just issued its Second Progress Report [1] Committee was appointed by the Ministry of iculture in 1924 and during the past year has ered serious loss by the deaths of Sir William shman, the chairman, and Sir Stewart Stockman report contains information of great interest ring especially on the methods by which the sease is spread and on attempts to produce artificial munity There are three appendices the first the late Sir Stewart Stockman and Mr F C nett, gives details of the work carried out at the oratories of the Ministry at New Haw and at Pirbright Experimental Station, the second is Dr S P Bedson, Mrs Y M Burbury, and H B Maitland from the Lister Institute, and last contains a bibliography of foot-and-mouth ase since the beginning of 1924 The number experiments and conclusions recorded, and the f results in the directions indicated, follow

ost previous observers had emphasised the lity of the virus to resist drying Indeed, in Loffler laid down that only under moist tions could it survive in the outside world, ugh it is true that Roux, Vallée, Carré, Nocard recorded experiments showing that l fluid rapidly dried in vacuo may sometimes e for as many as 18 days Experiments recorded present report show that when dried on a glass virus in diluted filtrate of vesical fluid will e over pure sulphuric acid for a year, and that it is placed on favourable material, and dried ordinary atmospheric conditions in the labora he survival may continue for several weeks ol or filter paper the virus did not remain longer than a week, but when allowed to dry , bran, or flour, without special precautions avoidance of light, the virus was found infective for guinea-pigs after 12, 20, and s respectively Such surprising viability erials used as fodder cannot be without l significance, and it is interesting to note utwein [2] has also recently published evidence resistance of the virus to drying for long especially when contained in pieces of epithe- The danger from these sources has been home by the discovery that the skin on the the bone marrow of pigs killed during the stage may not only contain active virus able by experiment with guinea-pigs, but t healthy pigs, especially if the bones are p and fed to these animals These facts, scovery that carcasses of pigs showing lesions sease had been imported during the past his country and could be made to reproduce e experimentally, have materially aided the nt of preventive measures Knowledge urther advanced by a series of experiments on the survival of virus in carcasses under varying conditions, including burial and preservation in brine

The other investigations in the report and which may have far-reaching results are those on the protection of guinea-pigs by a non-infective vaccine made with dilute vesical fluid treated with formalin The protection against inoculation with the virus afforded to guinea-pigs by a single dose of this vaccine is very striking and a great many observations on the dosage and degree of resulting immunity are recorded So far the experiments have been made almost entirely with these animals, but there is evidence that an intramuscular dose of formalised vaccine may protect a calf against the same strain of virus also given intramuscularly The protection in this way of highly susceptible animals such as cattle and pigs against natural infection has not yet been achieved, though Vallée, Carré, and Rinjard last year reported a success with a formalised vaccine followed by a living dose of virus The subject of immunity to foot-and-mouth disease is complicated by the existence of the two distinct types, described by Vallée, which do not give protection, the one against the other Confirmation of this observation is also to be found in the report It may be noted that Waldmann and Trautwein have recently described at least three separate types of the disease in Germany where the existence of more than one type was not at first accepted A large amount of work has also been done on the immunity of experimental animals, the testing of protective serum, and its mode of action Experiments on the infection of rabbits, cats, dogs, and birds are also recorded, all these animals can be infected experimentally but only rarely, if ever, prove infective for others Though these are of considerable interest and importance from the theoretical point of view, they do not appear to have much immediate practical application Further attempts to culture the virus on artificial media have proved unavailing On the whole, however, the Second Progress Report, besides providing much new and interesting information about this typical example of the filtrable viruses and the disease which it produces, encourages the hope that the Committee's labours will lead to further results of great importance

QUALIFYING EXAMINATIONS FOR NURSES

The qualities needed for looking after the sick are largely temperamental, and of numerous women it has been said that they were born nurses This means that nursing must always be a vocation—that it is not a mere trade in which the most skilful are necessarily the most successful, and the distinction is especially important to remember now that State examinations have to be passed before a nurse can enter her profession It is not enough to be born, she must be registered as well, and though this is admittedly desirable it introduces a principle which may easily be carried too far A qualifying examination is always dangerous, because it lays emphasis on certain attributes in the candidate, and it is necessary to be careful that these attributes shall be those on which efficiency depends There are special reasons, moreover, for care in choosing examinational standards for nurses The first is that since registration was devised as a means of raising the status of the nursing profession, there is a risk of the standards being set too high by people who have in mind an ideal which is for the time being unattainable, any new mechanism of progress is liable at first to over-use The second reason is that at the present time there is a shortage

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rogress Report Foot-and Mouth Disease Research H M Stationery Office 3s net

r wissenschaftliche und praktische Tierheilkunde, 3 shows that Germany is faced with the same economic problems as ourselves, problems which are indeed world wide at the present time The chapter on disinfection also stresses the same point—viz, the high cost of disinfection when thoroughly carried out. One district is quoted in which it was possible to effect household disinfection after the death of a tuberculous patient in only 57 7 per cent of instances Amongst other valuable information given in this chapter is an inquiry into the relative cost and sterilising value of antiseptics Forest schools, sanatoriums (with plans for construction), and the colony system all receive attention Much emphasis is laid on education propaganda and special chapters are devoted to the patient in relation to the family, the nursing sister, the medical student, the practitioner, the school, and the press

THE ABDOMEN.

Anatomie Medico-Chirurgicale de l'Abdomen: III, la Region Lombaire et le Petit Bassin Par RAYMOND GREGOIRE. Paris · J. B Baillière et Fils 1926 Pp 304 Fr.30

THE third, and last, volume of Prof. Gregoire's original work on the abdomen is disappointing; this feeling is really due, in large part, to the vivid impression left on us by the last volume of the series Nevertheless the book is a disappointment in other ways also We refer especially to the confused impression which it gives, possibly owing to the arrangement or order in which the separate parts are considered That the matter itself is good goes without saying, in view of the reputation of the author, but the book does not give us the same clear mental pictures of the parts as were suggested by the admirable descriptions in the earlier volumes This is especially noticeable in the section dealing with the pelvic organs, where the accounts seem meagre and disconnected However, the completed work, as a whole, is one of definite medico-surgical value

A FIRST COURSE IN HYGIENE

Seventh edition By ROBERT A LYSTER, M D, B Sc Lond, D P H Revised and enlarged by Colonel R J BLACKHAM, C B, D S O, M D, D P H. Lond London · W. B. Clive. 1926 Pp. 335 4s

THIS little book covers a wide field, ranging in 22 chapters from the anatomical structure and functions of the body and its various systems through the usual gamut of information regarding ventilation, foodstuffs, personal hygiene, soils and sites, water-supplies, housing, cleansing, and refuse disposal, to elementary first-aid, communicable diseases, and disinfection The excellent policy is adopted of introducing each practical aspect of hygiene with an elementary exposition of the physiological and anatomical problems involved There are numerous illustrations and each chapter concludes with instructions for the carrying out of simple illustrative experiments Necessarily it is potted knowledge of the kind which external examinations are encouraging examinees to absorb

The book presents the unevenness associated with attempts to bring an old work up to date While there is quite adequate consideration of the accessory food factors, the almost equally important question of the balance of amino-acids in proteins is overlooked, and although the influence of irradiation on cholesterol is casually mentioned, the physiological influence of the deprivation of light, and more especially of ultra-violet rays, on the human organism is entirely neglected Some inkling of present day ideas about ventilation is contained in the chapter on air and respiration, but it is counteracted under "ventilation" by the emphasis laid on "organic impurities" Measles is described without Koplik's spots and we are told that "all contacts [with enteric fever] . . . should be quarantined for a month". Disinfection is dealt with in much detail, but no mention is made of modern views as to the relative importance of disinfection among the munitions of hygiene The task of writing or revising a book of this kind is an unenviable one and we do not wish to suggest that this one is not more than worth the exceedingly low price at which it is sold, but the announcement that it has been "brought thoroughly up to date" can hardly be substantiated The danger is that it will be found difficult, as our knowledge advances, to re-educate the increasing body of persons who are acquiring from small manuals dogmatic information which is even now questioned in enlightened circles

THE NORMAL CHILD.

By B SACHS, M D. New York Paul B Hoeber 1926 Pp 111. $1 50.

THIS little book sets out the substance, presented in a form intended for parents and teachers, of the chapter on the Normal Child in Sachs and Hausman's recent work on Nervous and Mental Disorders from Birth through Adolescence The author's attitude towards many problems of the development of the child is decidedly conservative and may even be considered reactionary by the adherents of some modern cults His advice to parents throughout the book is to be guided by common sense and not by psychological theories While he holds no brief for the current methods of intelligence-testing and the inferences drawn from them, or for the behaviourist point of view, it is the Freudian interpretation of psychological mechanisms, particularly as it involves the relation of the child to family and environment, that is the principal object of his attack In a chapter entitled "The Evils of Psycho-Analysis" the whole structure of Freudian psychology is represented to the reader as unscientific in theory and mischievous in its application to the upbringing of the child

On the positive side the book contains much valuable advice, which may bring assistance and relief to parents who have received from contemporary litera ture the impression that discipline and parenta influence have no place in modern child-training

SOLUBLE AND INSOLUBLE BISMUTH SALTS IN SYPHILI

Solubles ou Insolubles, le Benzo-Bismuth
Syphilithérapie Par le Dr HENRI DROUI
ex Chef de Laboratoire a l'Hôpital Broca, Laure
de la Faculté. Paris: Editions Paul-Marti
Pp 96 Fr 6

Dr Drouin, in this monograph, makes out a g
case for the administration of soluble salts of ben
bismuth in syphilis, and is, indeed, most spirited
their defence After experiments on rabbits
guinea-pigs, and from observation on patients s
1919, he is firm in the belief that administratio
trioxybismutho-benzoate of soda, in sulphure
aqueous solution, administered by the subcutan
or intramuscular route, is better tolerated
generally and at the site of injection than the inso
salts He also considers the drug to be less t
better eliminated, and more easily handled O
insoluble salts he seems to favour only the qu
iodo-bismuthate preparations Syphilologists i
country have not so far come to this conc
but have found the tartro-bismuthates an
hydroxides of bismuth, as well as quinin
bismuth preparations effective both in c
syphilitic lesions and in changing positive Wass
reactions to negative, with relatively little tox

WEST KENT MEDICO-CHIRURGICAL SOCI
meeting will be held at the Miller General
Greenwich, on Friday, March 11th, at 8 45 P.M.
Birley will give an address on Some Problem
Treatment of Neurosyphilis.

from the point of view of the public, the medical profession, and the nurses themselves, is for a more copious supply of women who wish to take up nursing Good material is almost certainly available, and it would be a pity if the enthusiasm of suitable people were inhibited by too ambitious a scheme of education Excess of book-work means a heavy strain on the minds and spirits of probationers Any loss of good recruits from this cause seems especially regrettable when it is realised that theoretical knowledge is at best an unsatisfactory criterion for the selection of nurses.

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HEALTH IN INDUSTRY

THE Industrial Health Education Society is an organisation for the spread among the British industrial population of fundamental lessons for the maintenance of health It had its origin in a Scottish body entitled the Industrial Health Education Council, and its first annual meeting, held last week, therefore properly took place in Edinburgh Sir WILLIAM HALDANE, who presided at the meeting, laid stress among other things upon the enormous pecuniary loss that is represented by the presence among workers of widespread preventable sickness, largely of occupational nature, and was following in the footsteps of many prominent speakers upon similar occasions when he declared that education would be the surest means of enabling the workers to defend themselves from the evils of ill-health as they prevailed in their particular occupations There can be no two opinions on the matter Parliamentary regulations and statutory by laws have a good outcome, still larger effects accompany the dissemination of authoritative information from the Ministry of Health, such as now reaches the public through the newspapers, but direct appeal to the section of the populations especially concerned by means of lectures, demonstrations, and propaganda generally produces prompter results, particularly if the appeal can wear the shape of a message that everyone should help himself and his comrades in accordance with the counsel laid down Organisations of the workers and individual workers are quick to grasp the real positions when they are placed clearly before them in this manner, and will assist in any public movement for the abatement of the demonstrable ills

At the meeting of the Society referred to, Sir WILLIAM HALDANE, in moving the adoption of the annual report and financial statement, dwelt upon the unfortunate habit prevalent among all sections of society, industrial and other, of waiting before calling in the doctor until the peccant condition was so far established that remedy had become proportionately difficult and sometimes impossible This, again, is a statement which has been made in public often before, and which cannot be too often repeated because it indicates the difficulties which lie before the medical profession in carrying out its ideals in the matter of prevention The medical profession is constantly told that much of the mortality from malignant disease is due to the absence of early treatment, but, as Mr STANLEY WYARD points out in a letter in another column, early application for treatment must take place before the medical man can make the early diagnosis, the need for which is perpetually revealed Such early application will become much more frequent as the public learns, through a wise spread of the right knowledge, what are the things that matter, what are the just causes for apprehension, and what are the conditions commonly associated with the appearance and the spread of sickness That the public is anxious for such information is well proved by its attitude during the recent pandemic of influenza, when the desire for trustworthy guidance on the personal aspects of prevention was clearly manifested, and manifested in hard circumstances, for neither the Ministry of Health nor anyone else was able to give authoritative replies to categorical questions, owing to the limitations of our knowledge These limitations had an unfortunate sequel in that the inability on the part of responsible persons to prescribe a panacea gave an opening to the irresponsible, many of whom rushed into the breach and made pronouncements, advocating measures which were sometimes mutually contradictory and sometimes those which the Ministry of Health had put forward tentatively and which were now pressed upon the public with assurance and without discretion But the position is a difficult one In the face of an epidemic the people ask for a sign and are dissatisfied when they are told that no sign can be given, and that the only exorcism is a way of living which is often equally applicable to non-epidemic times It is true that such occasions may be seized upon for driving home sound doctrines upon domestic hygiene, and for the expression of sensible reflections upon proper ventilation, the use of exercise, the rôle of clothing, and the need of dietetic precautions, experience, however, has shown that these lessons are soon forgotten when the emergency is passed, and also, alas, that those who observe the lessons are not by any means exempt from the epidemic Here, of course, is where the dogmatic general advice fails particularly badly in the matter of dietaries, for not only is the gospel truth of one adviser at variance with the rational conclusion of another adviser, but patients conform only in a rough manner to a common pattern, and supply therefore a considerable percentage of persons who fail to react as their fellows may do

There should be a valuable future for the Industrial Health Education Society, the dissemination of public messages on health topics is a matter which bristles with practical difficulties, and all intelligent attempts that are made to cope with these difficulties are therefore welcome The purpose of preventive medicine is not only the reduction of disease or the postponement of the event of death, but the strengthening of the health and the raising of the standard of physical capacity of the normal person The private practitioner has opportunities for keeping the normal individual on the track of health, while the public medical services are largely concerned with the already damaged There is definitely a need for some form of systematic education of the public in matters pertaining to health This is so far recognised that the organisation of propaganda has almost become a special branch of public health administration Health departments have at their disposal, mostly through voluntary organisations, panels of paid lecturers, travelling exhibitions, lantern slides and synopses of lectures, films and posters, handbills and pamphlets Mass attacks are frequently organised in the form, for instance, of Health Weeks But far as we have gone in this direction, we are still a long way behind America where the "selling" of health, with the aid of innumerable artifices for catching the public eye and ear, has received a great deal of attention Dr Almus Pickerbaugh is a grotesque, but he illustrates a movement which is quite real in America Are we right in our view that the British public are less receptive? And is our more

[illegible]
G. S. Medical College

of candidates for the nursing profession and it would be sad if either the qualifying examinations, the study required for them, or the conditions of training entailed, were regarded as a bar to the service by girls who were otherwise suitable The third reason, which has been indicated already, is that knowledge is on the whole less important in nursing than are temperament, health, and the kind of practical ability which either is inborn or comes with experience Training and book-learning are useful supplements, but the public should not be encouraged to think that an aptitude for acquiring theoretical knowledge is an essential part of the nurse's equipment

These reflections arise from perusal of the examination papers recently set by the General Nursing Council for England and Wales In the Preliminary Examination held on Feb 1st the candidates were probationers of one year's standing and in their first paper they were invited to answer three of the following questions, including one from each section

A Anatomy —(1) Give a short anatomical description of the knee-joint (2) What parts of the body receive their blood-supply through the innominate artery? (3) Describe briefly the cavity of the pharynx, and the various openings which communicate with it

B Physiology —(1) Describe the various kinds of blood corpuscles What do you know of their functions? (2) How does the body obtain its store of glycogen, and what are its uses? (3) What are the functions of the lymphatic vessels?

Most of these questions might be asked in examinations for the highest medical and surgical degrees, and it must be supposed that the Council's examiners are content to receive very simple and dogmatic answers The candidates, however, have little assurance of this, and anxiety will not be diminished by turning to the "Answers by a Sister-Tutor," published in the *Nursing Times* Dealing on Feb 19th with the examination paper we have quoted, the sister-tutor answers the third of the anatomical questions and begins as follows —

> "The pharynx is a muscular tube suspended from the base of the skull and lying directly in front of the cervical vertebræ Its upper portion, which lies behind the posterior nares, is called the naso-pharynx and the lower portion behind the mouth and tongue is the oro-pharynx. It is lined throughout with mucous membrane, which is continuous with that of the nares and mouth above and that of the larynx and œsophagus below The muscles of the pharynx are largely arranged in circular and longitudinal fibres, which contract alternately, forming a wave-like movement during swallowing At intervals throughout the pharynx are patches of lymphoid tissue, which are a great safeguard against the entry of disease germs, the chief being at the base of the naso-pharynx"

She continues in this strain for another 320 words, ending with the statement that "the cricoid cartilage below is the *only* complete ring of cartilage in the trachea and is narrow in front and broad behind" Her answer is a praiseworthy summary of the facts, but it does not suggest that candidates are intended to reply to the questions only so far as they bear on the practice of nursing, as might otherwise be presumed Nor can this limited requirement be inferred from some of the papers set in the Final Examination for the General Register, which was held on Feb 2nd The first paper begins thus —

Medicine —(1) Give the symptoms and signs of rheumatic fever, pointing out the differences as found in children and adults (2) What is meant by "pleurisy"? What are the different forms? Give the symptoms of each (3) What are the chief causes of irregular enlargements of the breast? What advice would you give to a patient with such condition if she applied to you?

The candidates had to answer at least one of these questions, whilst among the alternatives in the second section was, "What dietetic and local measures might be recommended for an adult patient with severe eczema?" This question is far from being beyond criticism, but even more controversial are two others in which the nurse was asked to indicate the chief characteristics of the various kinds of ulceration of the cervix (stating what methods of treatment might be employed in each), and was expected to give some account of "the principles underlying the use of antitoxins and vaccines in infectious disease"

It may be that in practice the Council does not reject candidates for their ignorance on the questions we have quoted, it may be that its bark is worse than its bite At the moment, however, the bark is likely to have unfortunate results The recent examination papers deal with too many subjects of which knowledge is not essential to every nurse The fact that the questions have alternatives will not prevent the conscientious student from trying to cover the whole ground surveyed, and the scope of the examinations makes it necessary for the schools of nursing to cram their pupils with facts which cannot be digested Much of the theoretical teaching nowadays given does not arise naturally from work in the wards, but rather out of the demands of the examining body Everyone will agree that an elementary knowledge of physiology and anatomy is all to the good, but a nurse must seldom find it necessary to remember morphological details, nor is it desirable that probationers should be taught to think in this peculiar way And here, indeed, is the crux of the matter There is no time to teach a nurse to think like a medical man, even if there were inclination, and if she is taught a great number of facts, without being instructed in the use of them, it is quite possible that she will end by getting a dangerously false impression of her powers In diagnosis, with which some of the questions incidentally deal, there is nothing more risky than the half knowledge which comes from reading elementary handbooks, and the nurse who relates her patient's every symptom to the medical adviser is a far safer assistant than she who fancies herself an amateur doctor Frequent reference to a medical man is, of course, a counsel of perfection, for many nurses carry on their work in places where help is not available for weeks at a time In such situations they have to use their discretion, which is often admirable, but these posts should only be entrusted to experienced women or those with special training Admission to the State Register is surely not meant to imply that the newly qualified nurse is fitted to assume diagnostic responsibility It ought merely to show that a candidate has the knowledge essential for efficient nursing—that she can keep a patient clean and comfortable, dress his wounds, prepare his food, administer the remedies prescribed, observe and report on his condition, and cope with emergencies which are likely to arise These are no easy tasks, but they do not require knowledge of the innominate artery, the kinds of blood corpuscle, the metabolism of glycogen, or the functions of lymphatic vessels Such information will doubtless increase a student's interest in the human body, and within limits it is valuable, but it is seldom, if ever, of immediate practical importance in nursing, it is an extra and should be regarded as such To know about the varieties of ulceration of the cervix and the dietetic treatment of eczema is only necessary for those whose work is done under special conditions of isolation or responsibility The present examination seems to demand knowledge which it is hard to gain without either long experience or a special training which cannot be given to every probationer The result is a tendency towards widespread cramming The immediate need, alike destruction of the upper incisors in infants and attributed it to the use of a dummy dipped in some fermentable solution. In Mr Pitt's series a dummy dipped in carbohydrate was used in 43 children out of 74 The teeth extracted were kept and microscopical sections were made from two or three of each batch The enamel was usually so fragmentary that it was impossible to determine its structure, so attention was chiefly paid to the structure of the dentine The teeth were divided into three groups. (1) those which were well formed, (2) those which showed slight imperfections, but not enough to warrant the assumption that the defects implied a pathological cause, and (3) those which showed marked defects of structure and could be fairly termed hypoplastic The teeth of 40 children were examined microscopically, and in 20 of them the teeth fell into the first group, in 10 into the second, and in 10 into the third In this last group the defects consisted of rows of interglobular spaces in the dentine, to an extent which suggested that the defective structure was due to some interference with the process of calcification and that it must have lowered the resistance of the teeth to dental caries It is rather remarkable that visible defects of the enamel only occurred in 5 out of the 70 children examined, and that there were only three cases of visible hypoplasia in the series of teeth examined by microscope Only one of these, a case of fragilitas ossium, was placed in group 3

Mr Pitts summarises as follows In 58 per cent of the children there was a use of a dummy dipped in fermentable carbohydrate Both the carbohydrate and the way it was used, chiefly at night, provided conditions favourable to rapid and early caries In addition to this habit there was a history in some cases of the use of a biscuit or some similar starchy food being given at night Thus in rather more than half the children the caries could be accounted for by a dietetic factor But in a considerable percentage the dietetic history seemed insufficient to account for the caries, and the microscopic evidence which showed defective structure in 25 per cent of the children, suggests that this imperfect calcification may explain its onset As to whether the imperfect structure was due to lack of vitamins as suggested by Mrs Mellanby, no reliable data were obtainable, though the histories seldom revealed a definite lack of vitamins in the diet The harmful effect of the dummy comforter has long been recognised by infant welfare workers and the investigations of Mr Pitts should strengthen the prejudice against it.

THE NATURAL DURATION OF CANCER

A paper[1] on untreated cancer of the breast, by E M Daland of Boston, provides interesting confirmation from America of the findings published by Major Greenwood[2] for this country Daland deals with 100 and Greenwood with 651 patients All these cases had, so far as could be ascertained, no treatment of any kind from the commencement of the disease till their death—that is, throughout the entire course of the disease The duration is measured from the time when the patient first noticed the symptoms of disease—namely, the tumour, till death Daland finds the mean duration of the disease to be 40 5 months and the median period—i e, that at which 50 per cent had died—to be 30 months Greenwood's figures, which are based on three separate series, give a general mean duration of 38 3 months (39 8, 39 57 and 32 78 for the several series), and 27 5 and 24 0 months for the median period. Although the two sets of results are very similar, Daland's data show a somewhat longer duration of life, his series however is very much smaller and to that extent less reliable The same feature is shown in the survivorship tables Daland finds 40 per cent, 22 per cent, 16 per cent, and 5 per cent alive at the end of 3 5, 6, and 10 years respectively from the detection of the symptoms, all had died at 13 years Greenwood's figures are 34 per cent, 16 per cent, and 12 per cent at the end of 3, 5 and 6 years In view of the difference in the size of the samples, this is probably as close a correspondence as could be expected, which suggests that the "malignancy" of cancer of the breast is roughly the same in Great Britain and in the East of America Daland also gives some data of results after radical operation for cancer of the breast Of 16 cases without glandular involvement, 62 5 per cent were alive at the end of seven years after the detection of the tumour It is not stated whether any had died of diseases other than cancer, but one had died of operation These figures are not so favourable as those published last year[3] for the Leeds cases Out of 39 patients without glandular involvement, 30, or 77 per cent, were still alive at the end of ten years after operation, and of the nine deaths six had been due to causes other than cancer All series of cases are valuable which show the fate of patients at long periods after operation for mammary cancer. So far as they have been published they show how favourable are the results obtained with radical operation at a time when the growth is still confined to the breast

DEVELOPMENT OF LOWER PART OF VAGINA

Much argument has centred round the vexed question of the development of the lower part of the vagina, which has seemed to anatomists, and more indefinitely to clinicians and pathologists, to differ in certain particulars from the upper portion of the tube. It has been derived by individual workers from the Mullerian ducts, from the dilated ends of the Wolffian ducts, from combinations of both these structures, or from the urogenital sinus, either above or in combination with one of the varieties of ducts just mentioned It has, moreover, been described as growing *in situ*, and as extending down secondarily and freely to assume its ultimate position and opening At a meeting of the Anatomical Society held on Feb 4th at St Mary's Hospital Miss Alice Bloomfield and Prof J. E Frazer brought forward a first account of the results of their observations by serial sections on purely human material, showing that, up to the time when its presence is variable and it frequently disappears altogether, the Wolffian duct is distinct from the Müllerian duct, and shows no sign whatever of growth or bulbous formation They showed the lower end of the vagina to be purely Mullerian in its development, in the course of which it extends along the wall of the urogenital sinus and invaginates this to a considerable extent, producing the evaginated hymen in the relatively shortened sinus This simple account not only explains many of the features met with in the fœtal condition, but is in keeping with what might be expected on general morphological grounds

AN AMERICAN EPILEPTIC COLONY.

The Craig Colony in the State of New York is famous among institutions for the care of epileptics, and Dr William Shanahan the medical superintendent always has some shrewd observations to make upon the care and treatment of his patients—observations which it would be useful to publish in the form of a book A few facts taken from the thirty-third annual report will indicate how large is the experience which the colony offers and how ambitious is the work done There is now an average population of 1586, with nine resident, three visiting, and nine consultant physicians. The net cost per patient is 324 dollars a year or nearly 26s per week, and in this report Dr Shanahan asks for capital alterations and additions to the value of £300,000. Among more critically sceptical attitude a drawback to the public weal? There are some who think that direct instruction of the British public on the principles of healthy living ought to be given more systematically than at present, and among these are Dr W **Allen Daley** and Miss **Hester Viney**, joint authors of a book on the subject recently published[1] The authors, after describing the kind of education continually given through the routine practice of medical practitioners, private or public, and through nurses, present a moderate statement of the case for special teaching, and set out in a lengthy appendix model schemes, syllabuses of lectures, leaflets, programmes for lecture or health weeks, and lists of films which may be used as the skeleton of propaganda campaigns We are glad to find their enthusiasm qualified by a warning against the risk of vulgar advertisement methods, while the recognition of the fact that the ideal place for health-teaching is in the curriculum of the ordinary school is welcome In their view that health should not be taken as an isolated subject, but the whole curriculum of the school thoughtfully studied before the classes begin, and the health classes correlated with the rest of the subjects taught, we can trace the steadying influence of Sir **George Newman**, but if the children are to be guided from day to day and hour to hour, as the occurrences of school life afford the opportunity, every teacher ought to have sound and up-to-date training When this occurs no doubt health in industry will improve beyond belief, meantime the Industrial Health Education Society has a great task before it

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[1] Surgery Gynecology and Obstetrics, February 1927

[2] Ministry of Health Reports on Public Health and Medical Subjects 1926, No 34

[3] Ministry of Health Reports on Public Health and Medical Subjects, 1926 No 34

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THE LISTER CENTENARY.

The provisional programme for the Lister Centenary celebrations has now been agreed The celebrations will commence on Monday, April 4th, with the reception of delegates by H M the King at Buckingham Palace, and on the evening of that day a reception will be held at the Royal Society of Medicine, when Sir **StClair Thomson** will give an address On Tuesday, April 5th, at 11 30 A M, there will a reception of delegates by the Prime Minister and a presentation of addresses at the House of the British Medical Association, applications for tickets to the ceremony may be sent to the secretaries of the Royal Society at Burlington House or to the British Medical Association There will be short discourses by three delegates from abroad, dealing with the effect of **Lister**'s work on surgical and pathological science and practice in their countries In the afternoon of that day there will be a conversazione at the Royal College of Surgeons, England, and in the evening a dinner with the Merchant Taylors' Company at their hall On Wednesday, April 6th, there will be a memorial service in Westminster Abbey at 11 15 A M, when an address will be delivered by the Bishop of Birmingham, the Rt Rev E W. **Barnes**, F R S In the afternoon there will be a meeting at the Royal Society of Medicine at 3 P M, when discourses will be delivered in the Robert Barnes Hall by Sir **Charles Sherrington**, Prof W **Bulloch**, and Sir **Berkeley Moynihan** In the evening there will be a conversazione at the rooms of the Royal Society, Burlington House Arrangements have been made that ladies should be present at all these ceremonies except at the dinner on the evening of April 5th There will be an information bureau in the rooms of the Royal Society where tickets for the various receptions and ceremonies will be issued to the official delegates The bureau will be open on Saturday, April 2nd, and Sunday, April 3rd, from 10 A M till 5 P M The bureau will also be open from 9 A M on Monday, April 4th, but it is hoped that as many delegates as possible will present themselves at the bureau with their credentials, not later than Sunday All communications should be addressed to the secretaries of the Royal Society, Burlington House, London, W 1

A Lister Exhibition in the Wellcome Historical Medical Museum, 54A, Wigmore-street, will be open for inspection by the delegates, daily, 9 30 A M to 6 P M, from Monday, April 4th, until further notice

Annotations.

"Ne quid nimis"

DENTAL CARIES IN BABIES

To all workers in children's hospitals and infant welfare centres the spectacle of children of 2 or 3 years of age with extensive caries of the teeth is a familiar sight, but among dentists the ætiology of this early decay has not received much attention, probably because neither the private practitioner nor the school dentist sees many children so young In a recent paper[1] Mr A T Pitts describes some valuable investigations at the Hospital for Sick Children, Great Ormond-street For the sake of completeness the carious teeth extracted from each child were examined microscopically so that their minute structure could be correlated with the clinical data Many parents, he says, stated that the teeth came through the gums already decayed, and, though this cannot be correct as a statement of fact, it may, he suggests, have an element of truth in it and possibly signifies some congenital defect of structure which renders the teeth more liable to caries Such a view has been strongly urged by Mrs May Mellanby as the result of her experimental work Children under 3 form about 7 per cent of those attending the dental department of the Hospital Though this does not represent the true incidence of caries at this age, since all the children are brought on account of various kinds of dental disease, yet it shows that in babies the condition is not negligible Indeed, some figures obtained by Dr Ethel Dukes from an infant welfare clinic showed a much higher percentage, for out of 84 children under 3 years old, 22 had carious teeth The teeth usually affected are the upper incisors, the caries may start on the labial surface and extend toward the cutting edge or, more rarely, may start on the cutting edge itself and progress upwards to the gum margin Sometimes this latter type of caries may cause a definite notch

Mr Pitts suggests that damage to the incisors may be mistaken for the stigma of congenital syphilis, known as Hutchinson's teeth, which would account for the statement that occasionally Hutchinson's notch occurs in the temporary teeth The resemblance, however, is only superficial and Mr Pitts has never seen a true syphilitic notch in the temporary dentition In 29 per cent of the children examined the mothers stated that the teeth were defective on eruption, and though in only a few cases were there any visible sign of defective structure in the other teeth, it is thought that the mothers' statements should not be entirely disregarded The majority of the children were breast-fed, many of them for long periods, and there seemed to be no correlation of the caries with either breast or bottle feeding It was often found that a dummy comforter had been used, frequently with some sugary or carbohydrate substance to help its soothing action The substances most commonly employed for this purpose were virol, condensed milk, and honey It is noteworthy that E H Harries[2] in 1911 drew attention to the rapid myocardium in heart disease was of greater importance than the nature of the valvular lesion, a conception that was further realised by the late Sir J. Mackenzie. Cardarelli cultivated science for its own sake, not for the satisfaction it can give to those who follow its teachings but for the gladness it can give when applied to the betterment of human life. As Prof Maragliano has said of him in a recent obituary notice in the *Riforma Medica*, "If the human body of Antonio Cardarelli is now lifeless and lovingly returned to the bosom of his native land his spirit remains the eternal symbol of a teaching that should never be forgotten in the Italian Schools"

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[1] Popular Education in Health By W Allen Daley, M D, B S, B Sc, D P H, Medical Officer of Health and School Medical Officer, City and County of Kingston-upon-Hull, and Hester Viney, S R N London H K Lewis and Co, Ltd 1927 Pp 210 6s

[1] British Dental Journal, Feb 15th, 1927

[2] The Lancet, 1911, ii, 1327

PSYCHICAL RESEARCH

WE have received the first part of Vol I. of the Proceedings of the National Laboratory of Psychical Research, established in South Kensington for the scientific investigation of alleged abnormal phenomena and forming the European headquarters of the American Society for Psychical Research Starting with no preconceived theories the Council will endeavour to ascertain and demonstrate the laws underlying psychic or abnormal manifestations, and they emphasise the fact that every person connected with the laboratory is, by personal investigation convinced of the reality of physical and mental phenomena, apparently abnormal, for which a normal explanation cannot be found The present fasciculus is wholly occupied with an account of the telekinetic and other phenomena witnessed through Eleonore Zugun, a Roumanian girl 13 years old who, in her own view and in that of her friends at home, is possessed of a familiar spirit which plays all sorts of strange and useless tricks when she is about The girl is described as healthy, very intelligent and happy, and appears to enjoy nothing better than playing with clockwork trains; while she is doing this in the passage, a halfpenny which has been put on the mantelpiece in a neighbouring unoccupied room may quite likely be moved to the far corner of the room Dracu as the devil is called, did not eat the biscuits which Eleonore thoughtfully left for him (or her or it) in the laboratory overnight but he seems to have quite a habit of biting the girl and his teeth marks may suddenly appear at any time as white wheals And so on The whole forms a narrative which will confirm those who believe in their faith and will entirely fail to carry any conviction to unbelievers; it is an example of what has been done over and over again during the last 40 years or so and brings us no nearer a solution of the problems. For few serious-minded people will deny that psychical research has really produced problems of a fundamental character which we should all like to solve; but whether their spiritual significance can be elucidated by this material technique is very doubtful. Meanwhile it is evident that a subject who shows factitious urticaria as well as Eleonore does might well be passed on to Sir Thomas Lewis and his collaborators

RATIONALE OF WASSERMANN REACTION

ALTHOUGH brought to birth as the result of a satisfying system of ratiocination, the Wassermann reaction has in these latter days come to be recognised as a sort of diagnostic trick. Its usefulness is less than ever disputed, but why the serum of a syphilitic patient should give a positive reaction—which once seemed so easy to explain—has become shrouded in deeper and deeper mystery Even the invention by American workers of a hypothetical substance, "reagin," has thrown no real light on the facts, nor has the substitution of the term "immune serum" for the hallowed name of "amboceptor." The problem has lately been attacked from a somewhat unusual angle by Ameer Khan,[1] working in the laboratories of the Brooklyn State Hospital He sees the whole reaction in terms of hydrogen-ion concentration, and though a good deal more in the way of experimental proof is required to support the considerations which lead him to this view, his results so far as they go, are nevertheless interesting The Wassermann reaction, he believes, should be interpreted as a reversible chemical reaction dependent on the proportions of free H and OH ions present in the elements employed: a positive result he regards as due to a preponderance of H ions and a negative to a preponderance of the OH ions As the only variables in a properly carried out series of Wassermann reactions are the sera under investigation, it would follow from this hypothesis that the change in the blood of syphilitic patients must be an alteration in distribution of the inorganic radicles, giving rise to a preponderance of acid ions Such an alteration in a highly buffered substance like blood need not give rise to any actual change in pH, but it might lead to some change when the conditions of the buffering are altered, as in the Wassermann reaction, by mixing the blood with other test ingredients. No investigations on this point are recorded in Ameer Khan's paper.

TRANSFUSION

THERE are probably few therapeutic procedures which have a basis more securely founded on sound physiological and pathological knowledge than transfusion. We welcome, therefore, the very thorough review of these fundamentals which is contributed by Dr. C A. Doan from the Rockefeller Institute to the current number of that useful periodical *Physiological Reviews* (vol vii, p 1); his bibliography includes 717 items and he gives a critical summary of the whole The outstanding clinical point is that nothing can replace the direct testing of the bloods of donor and recipient against each other if the operator is as anxious as possible to avoid anything like an accident. A number of workers in recent years have found anomalous bloods which do not fit into the established scheme of classification into four types, and these instances are now so numerous (though relatively, of course, quite rare) that it is certain that they cannot be put down to slipshod technique. It is also plain, as Prof E. E Glynn and Dr A. R. Jones recently emphasised,[1] that the "universal donor" cannot be used indiscriminately; some of them have such a high titre of agglutinins in their serum that it may cause agglutination even when it is diluted in the blood stream of the recipient. The third agglutinating factor which was identified by Guthrie and Huck has been examined on a large scale at Sheffield by Dr F. W. Simson[2]; it complicates the normal grouping in a minor way though it is of more theoretical than practical importance. Preliminary grouping by type sera should, therefore, always be checked by direct testing of the two parties to the transfusion against one another. Dr. Doan's survey brings out two other conclusions from the now considerable mass of experience: that though it may occasionally prolong life in e g., pernicious anæmia, transfusion finds its real use in the replacement of blood lost by hæmorrhage and that it is best and most conveniently done by the citrate method and any simple apparatus Along broader lines the outstanding feature of recent work is the suggestion of Bernstein, Snyder, and others that the facts of the groups and their inheritance are best explained by an assumption of three heritable factors instead of the two originally proposed by Donath and Landsteiner. It certainly seems as if the anthropological data, which have so far given rather disappointing results, are more reasonably interpreted on the new scheme and may yet throw light on the origin and relationships of human races.

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[1] American Journal of Syphilis, vol x, No 3

[1] Jour Path. Bact. 1926, xxix, 203.
[2] Ibid., p 279

than 5000 cases which have been discharged or have died since the colony was started, there has been a recovery rate of 3 2 per cent , the standard of recovery being freedom from seizures for at least two years The most interesting feature of the report is a bold attempt at an ætiological classification of the last 1500 patients admitted Among every 100 such patients the disease is supposed to have originated in 12 cases from "inflammatory cerebropathics" (meningitis or encephalitis), often arising as complications of an acute specific fever; in 11 cases the assigned cause is heredity, in 10 cases developmental defect, in three cases trauma at birth, in five cases trauma since birth, in two cases cerebro-vascular sclerosis, and in two cases syphilis, hereditary or acquired Of great interest are two other groups; 5 per cent are reported as cases of essential epilepsy, due to "personality make-up," and 4 per cent as endocrinopathic Only 43 per cent of cases remain as unclassified The figures given are only a summary of results, and it is difficult to make any comment without some knowledge of the methods adopted in arriving at them Nothing is said of multiple factors in any given case, but we assume that in each case an effort was made to select the major factor, and that it is upon these major factors that the classification is based It is to be noted that the investigation is an endeavour to state cause and effect The endocrine conditions and the developmental defects, for instance, are here cited not as concomitants but as causes of epilepsy We hope that Dr Shanahan and his collaborators will republish these figures in fuller detail and with some account of the methods adopted in classification The numbers are large, and the records, doubtless, thorough and complete Explained, considered and discussed, the figures should prove a valuable aid to all who are seeking to understand epilepsy Among other information given in the report it may be noted that the incidence of tuberculosis is higher than might be expected, for during the last five years tuberculous infection was present in 86 patients who died More surprising still is the fact that among the last 165 deaths only one was due to status epilepticus Pathological investigations during the year have included researches into the rate of sedimentation of the red blood cells and into the calcium-content of the blood In neither case did the figures for epileptics fall outside the normal limits

THE INJECTION OF FOREIGN INERT PARTICLES INTO THE BLOOD

It is known that many blood-cells on contact with a non-greasy foreign material are, by capillary action, pulled progressively onward over the foreign surface, like a drop of water on a stone To such cells, which include mammalian platelets and certain cells of the blood of astacus, Prof J Tait has given the name of thigmocytes They are not distorted by contact with an oily or greasy surface, and are highly phagocytic towards minute particles of non-greasy matter They have the power to ingest very minute particles of insoluble material without apparently suffering cytolysis, and are also a source of thrombin The platelets or hyaline thrombocytes of mammals are peculiar in at least two respects, in their small size and in apparent absence of a nucleus In the course of some experiments recorded in the *Journal of Physiology* (No 2, December, 1926, vol lxii) Tait, working with A R Elvidge, injected some excessively fine particles of fused quartz, and particles of Indian ink and other inert substances such as barium sulphate and carmine, into the ear vein of rabbits *A priori* considerations seemed to indicate that an injection of very fine particles might fail to cause coagulation of the circulating blood, whereas an injection of coarse particles might cause coagulation It was found on intravascular injection that even coarse particles did not necessarily determine thrombosis Addition of coarse particles to paraffin-held, drawn blood, by causing cytolysis of thrombocytes, eventually caused coagulation Addition of an adequate quantity of fine particles to the drawn blood of the frog similarly caused coagulation, while addition of a smaller quantity of fine particles did not Admixture of particles with the circulating blood while failing to cause thrombosis, nevertheless effected a transformation of fibrinogen into fibrin According to the observers the reason why thrombosis does not occur is that the particular conditions of formation of the fibrin allow of a successful response on the part of the "natural antithrombic mechanism" of the circulation However the thrombosis may be brought about, it would seem likely that the rate of injection of the particles is the important factor Rabbits will tolerate the intravenous injection of a thick suspension of fine particles of silica with no apparent ill-effects, provided the injection is given fairly slowly A rapid injection, however, is prone to be followed immediately by convulsions and death Tait and Elvidge report that as a result of intravascular injection of particles a fall in the number of circulating platelets occurs After a heavy injection the fall is profound (though complete disappearance was never observed), and some days elapse before the previous number is restored With injection of a smaller amount the fall of platelets is less and the time for recovery of the initial number is shorter By repetitions of the injections at intervals less than the time necessary for recovery the number of circulatory platelets can be kept low S P Bedson,[1] however, investigating the relationship of the reticulo-endothelial system to the number of circulating platelets, has shown that blockage of the splenic endothelial cells by carbon causes a considerable increase of platelets in the blood He suggests that the spleen regulates the number of circulating platelets by phagocytosing the old and effete elements, these findings are diametrically opposed to those of Tait and Elvidge, and the matter is clearly in need of further investigation.

ANTONIO CARDARELLI.

With the passing away last month of this great clinician at the advanced age of 96 years, Neapolitan medicine has lost the most brilliant star it has possessed in the last half century It seemed almost as if the wings of Death feared to touch this grand old man who, old as he was, suffered from none of the drawbacks of age, and preserved a wonderful freshness of interest; but at last the summons came and was heard with calmness and composure. Antonio Cardarelli was born on March 29th, 1831, at Civitanova del Sannio, his father being a much-respected provincial doctor. In 1890 he was called to the chair of medical pathology at Naples as successor to Arnaldo Cantani He was at one time a member of the Chamber of Deputies and became famous for his crusades against the high price of salt, alcoholism, and university reform, in 1896 he was nominated senator The various rivalries which existed among the professors at the hospital could not do otherwise than bring into prominence the brilliant gifts of clinician and teacher, which were so well harmonised in Cardarelli when he was still young And around the young professor there gathered a large crowd of pupils who were devoted to him and whom he taught with untiring zeal He was the discoverer and exponent of much well-recognised physical technique—for instance, laryngotracheal pulsation in aneurysm, percussion and auscultation of the sternum in affections of the mediastinum, transthoracic thrill in hydatid cysts of the liver, and a method of estimating cardiac efficiency Much interest attaches to his description of a group of morbid signs which he united under the name of cardiac neurosis in which he indicated the true meaning of Basedowian tremor, and signs relating to the pathology of the vagus and a special form (vasomotor) of angina pectoris It was also his conception that the condition of the minute, and in amounts equal to about 20 c cm per kg of body-weight It is repeated if the blood pressure shows a tendency to rise again. For further details the reader should consult this valuable paper, the results of which appear to have received general confirmation

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[1] Brit Jour Exp Path, vol vii, No 5

Lumbar puncture is another procedure which has been advocated, but according to the authors just quoted it is not without its risks, owing to the danger of a medullary pressure cone phase, well exemplified in their record of a fatal case It should therefore not be undertaken without due precaution and full realisation of its risks

Sedative drugs are valuable only in so far as they supplement and maintain the results obtained by the above methods The best of these are chloral hydrate, in doses of from 5 to 15 gr given every four hours by mouth or 30 gr by rectum and the judicious use of morphine Headache and vomiting are the result of increased intracranial tension and usually respond rapidly to the methods already described.

The treatment of œdema and the general management of these cases are part of the treatment of the causal nephritis.

To sum up, the aim in the treatment should be the prevention of uræmic convulsions by recognising the significance of a rise in blood pressure and taking prompt measures for its reduction

True Chronic Uræmia

This form is the final phase in chronic diffuse glomerulo-tubular nephritis, and is its most frequent mode of termination

Whilst a discussion of the numerous theories which have been advanced to explain the uræmic manifestations is beyond the scope of this article, it is interesting to note that the view put forward by Wilson in 1833 that urea was the responsible toxic substance, and regarded until quite recently as of little more than historical value, seems to be coming once more to the fore. To quote Wells,[2] "It would seem, despite the prevailing opinions to the contrary that it is entirely possible that the manifestations of uræmia may be caused by the known nitrogenous substances that the kidneys have to excrete, and that the only difficult thing to explain is the failure of investigators to consider the time element in experimental intoxication." In other words, it is necessary to record observations on the effects of retained substances when maintained in the organism at the concentration met with in uræmics Definite progress has already been made along these lines Hewlett Gilbert, and Wickett[3] found that if large doses (100-125 g) of urea were given to healthy men in single or divided doses, symptoms occurred when the blood concentration had reached a level of 160 to 245 mg of urea per 100 c cm of blood. These symptoms were headache giddiness, apathy, drowsiness, bodily weakness, nausea, and diarrhœa , in brief, the symptoms of chronic uræmia Leiter,[4] by the slow intravenous injection of urea into dogs, produced similar symptoms, death finally occurring from convulsions, when the amount injected reached an equivalent of at least 1 per cent of the animal's weight in grammes

It seems clear therefore, that we must revise our ideas and accord to urea a much more important role than that of a harmless, inert, waste product Doubtless other factors are of importance in certain cases, as for instance in those in which the blood-urea values lie within normal limits but such are exceptional and it is possible that some of them are examples of pseudo-uræmia and owe their symptoms to the effects of prolonged vascular hypertension rather than to renal failure

The clinical symptoms of uræmia appear insidiously and tend to assert themselves when figures of 150 mg or more of urea per 100 c cm. of blood have been reached When once established the course is progressive though temporary remissions may occasionally delay the fatal termination Treatment is profoundly unsatisfactory. but while we know of nothing to stem the inevitable march of events by the judicious treatment of outstanding symptoms the patient s sufferings can often be ameliorated and the end made easier

Gastro-intestinal Symptoms—In the majority of cases these are amongst the earliest and most troublesome symptoms to declare themselves, and represent the so-called gastro-intestinal type of uræmia The mouth should be kept clean by the frequent use of alkaline washes and all debris from the teeth and gums should be removed after meals to minimise, as far as possible. the risks of uræmic stomatitis Nausea and vomiting are prominent symptoms and contribute largely to the patient's discomfort. Gastric sedatives, such as cerium oxalate, gr v., in combination with dilute hydrocyanic acid and bismuth, ♏x. liquor adrenalin hydrochloride in water, and minim doses of tincture of iodine repeated at frequent intervals are all useful, whilst in especially intractable cases the following may give temporary relief

R Chloretone, gr v
Cocaine hydrochloride gr 1/5
Not more than three doses to be given in 24 hours

Constipation, often a very troublesome symptom, is best dealt with by frequent and large doses of saline aperients in order to encourage elimination of urea by this channel At times, however, a very troublesome and fatal diarrhœa, with all the manifestations of ulcerative colitis, will necessitate the use of suitable astringents and possibly opium

Persistent hiccough, though rare, is of grave import and proves very resistant to treatment Stimulating applications to the epigastrium, such as fomentations or mustard leaves, should be tried, and of drugs, nitro-glycerine gr 1/100, liquid extract of ergot in drachm doses, and carminatives, such as oil of turpentine ♏x in capsules, have their advocates The symptom is usually a terminal one, and there is no reason in obstinate cases to withhold morphine

The diet is not a matter of primary importance at this stage, the time having passed when any benefit could be expected from the rigid limitation of proteins Water should be given freely. and the patient s likes and dislikes consulted

Respiratory Symptoms—Paroxysmal dyspnœa, the so-called uræmic asthma is often a prominent symptom, and on the grounds that this is a manifestation of acidosis sodium bicarbonate. in drachm doses, every three or four hours, may be tried Inhalations of oxygen are useful, but probably the most certain method of relief is the injection of morphine

Cutaneous Symptoms—Itching of the skin, at times of intolerable severity and occasionally associated with various skin eruptions is best treated by the frequent use of warm alkaline baths and sedative drugs such as the bromides in full doses Elimination of toxins through the skin by the various methods of diaphoresis is not to be recommended It adds to the patient s weakness and does no good.

Nervous Symptoms—These consist of a mixture of depression and irritation Mental depression is often extreme and there may be increasing lethargy passing into coma Irritative phenomena are seen in the twitching of muscles and cramps. in restlessness, mild delirium, or even mania Chloral hydrate, gr v–xv in combination with gr xv of a bromide salt is useful, but our sheet anchor is morphine which, as Osler insisted, can be given under careful supervision without undue risk

Persistent headache, if unrelieved by aspirin, phenacetin or the like and especially if associated with a rise of blood pressure, should be treated by venesection or by the injection of a 1 per cent magnesium sulphate solution Convulsions which. though not an essential part of the clinical picture of chronic uræmia may occur in the terminal stage should be treated on similar lines

To sum up treatment of chronic uræmia is symptomatic only, and our end is gained if the sufferings of this lingering malady are in some measure eased For this purpose morphine is an indispensable ally.

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[2] Wells G Chemical Pathology 1925 5th edit
[3] Hewlett and others Archiv Int. Med. 1916, xviii. 636
[4] Leiter Archiv Int Med 1921, xxviii 331

SMALL-POX IN MONMOUTHSHIRE AND YORKSHIRE

ON the western side of Monmouthshire there are five industrial valleys draining downwards toward the town of Newport—namely from west to east, Rhymney, Sirhowy, Ebbw, and Western and Eastern Valleys An extensive outbreak of small-pox in these densely populated valleys has come to light during the past week The two most eastern of these valleys are mainly involved in the outbreak, but on Feb 28th a case was reported from Blackwood at the lower end of Sirhowy Valley In spite of the high mountains which separate them from each other these valleys are not far apart The inhabitants, numbering approximately 370,000, are mainly occupied in various branches of the mining industry and there is a great deal of intercommunication The opportunities for spread, therefore, in a population very largely unvaccinated are considerable A case of small-pox was discovered in Cardiff Royal Infirmary on Feb. 18th and removed to the Cardiff Small-pox Hospital The patient had been admitted to the infirmary from Abertillery in Monmouthshire, and the date of sickening definitely excluded a Cardiff infection On the following day another case of small-pox without any association with the first case was reported in Abertillery, and as the result of inquiries instituted by the county and urban district medical officers and a medical officer from the Welsh Board of Health, it was ascertained that a large number of similar cases were occurring in the area surrounding Abertillery Altogether up to Monday, Feb 28th, 40 cases had been discovered and dealt with The towns and villages affected are Garndiffaith, Blaenavon, Abertillery, Talywain, Varteg, Abserychan, Pontnewynydd, Penhow, Pontypool, Newport. The two cases reported in Newport are merely suspects

Monmouthshire County Council, who are the responsible authority for the isolation of small-pox, have no adequate isolation accommodation for this disease, and it has been necessary to utilise beds which Newport and Cardiff Corporations have put at their disposal We understand that further arrangements for increasing accommodation are being made, but it is obvious that an extensive outbreak of this nature will involve the rapid provision of a large number of beds In the meantime active measures for preventing the spread of infection are being taken, and a vigorous campaign is being carried out with the object of getting the population of the affected valleys vaccinated It is understood that the response to the appeals of the Health Department is good In Yorkshire the disease seems to be of a more virulent type The infection has spread to Leeds, while at South Shields nearly 30 new cases were notified, including two nurses Here, also the population is submitting to vaccination on a large scale

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THE Cambridge University Press announces the preparation of a new series, "The Cambridge Comparative Physiology," edited by Prof Joseph Barcroft, F R S, and Mr J T Saunders, University Demonstrator of Animal Morphology The first three volumes, which will be ready this spring, will be "The Comparative Physiology of the Heart," by Prof A J Clark, "The Genetics of Sexuality in Animals," by Dr F A E Crew, and "The Comparative Physiology of Internal Secretion," by Mr L T Hogben

EPSOM COLLEGE —The Council are about to award a St Anne's Home Scholarship of £52 a year to the orphan daughter of a medical man who has been in independent practice in England or Wales for not less than five years Candidates must be fully 7 years of age and not over 12 years of age on May 1st next The Council are also about to award a Henry Duncalfe Annuity of £30 a year to the unmarried daughter of a medical man. Candidates must not be under 50 years of age Forms of application can be obtained from the Secretary at the Office of the College, 49, Bedford-square, W C 1, and must be returned not later than the morning of March 16th

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Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXIII —THE TREATMENT OF URÆMIA

URÆMIA is an unsatisfactory term, including as it does symptoms diverse alike in mode of onset, ætiology, and pathology, and having but one thing in common—namely, their occurrence during the course of renal disease and in conditions associated with anuria Uræmia may be regarded as the expression of a temporary or permanent failure of the kidney in one or other of its functions The clinical manifestations are divisible into two well-recognised groups—a convulsive type occurring mainly in acute nephritis and tending to recovery, and a chronic type occurring as the terminal phase in chronic nephritis and indicating a kidney defeated beyond all power of repair Mixed forms are occasionally met with, but generally speaking the two groups are quite distinct A third type has been separated off by Volhard, and called by him pseudo-uræmia which, while resembling chronic uræmia in certain of its manifestations, is unattended by any evidence of renal failure, and is probably due to the effects of prolonged vascular hypertension The treatment of this group is outside the scope of this article

Acute Convulsive Uræmia

This form occurs as a complication of acute glomerulo-tubular nephritis and occasionally in those chronic parenchymatous forms associated with œdema, now more accurately designated chronic nephrosis

It may be regarded as due to over-action of the compensatory mechanism following failure of the kidney to excrete water and salts Since evidences of urea retention in anything but a moderate degree are wanting, the condition is not strictly uræmic and would perhaps better be classified as the cerebral symptoms of acute nephritis The underlying cause is in all probability compression of the brain against the rigid cranial wall by cerebral œdema, a theory which, originating with L Traube and lying discarded for many years, has now been revived Invariably associated with it is a rise in blood pressure, whose relationship to cerebral compression has been shown in the experimental work of H Cushing and the clinical observations of K Blackfan and B Hamilton Whilst the epileptiform attack is the classical expression of this type of uræmia certain rudimentary forms or, as Volhard calls them, eclamptic equivalents, may be substituted Such are headache, vomiting, localised paralyses or hemiplegia, sudden blindness, hemianopia, and various mental disturbances such as hallucination, delirium, and acute mania A prodromal stage, during which the blood pressure is rising, can be recognised, and is a valuable indication for treatment

Venesection —Acute convulsive uræmia is a medical emergency and demands prompt and adequate measures Frequent readings of the blood pressure during the course of acute nephritis will usually give warning of impending catastrophe, which may be averted by a timely venesection The removal of from 10 to 20 ounces of blood is a measure of proved utility, and should be resorted to without delay, either as a preventive measure or when convulsions have occurred

Intravenous Magnesium Sulphate —Recently Blackfan and Hamilton[1] have recorded a method which, they claim, is superior to any other in the treatment of this condition in children

These authors confirm the occurrence of cerebral œdema and the rise of blood pressure, and find that the intravenous injection of a 1 per cent solution of magnesium sulphate, together with the administration of large doses of the salt by mouth and by rectum, results in a prompt fall of blood pressure and a subsidence of cerebral symptoms The injection is given very slowly, not more than 10 c cm per than between ordinary twins in respect of tooth eruption, of occlusion, and of the occurrence of gingivitis; but the relationship is no closer in one group than in the other in respect of caries in permanent teeth and of hypoplasia He has assisted Mrs Forest Smith in the statistical treatment of the data for a report on Rheumatism shortly to be published by the Council

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[1] Blackfan, K, and Hamilton B Boston Med Jour 1925, cxcii, 617

Dr Young has investigated the incidence of cancer in the different districts and has assisted Dr Clara Stewart in a statistical analysis of the post-operative histories of hospital patients at Leeds which appeared in THE LANCET 1926, ii , 1258, while Mr W T Russell's study of the influence of fog and temperature on the respiratory death-rate among adults is also familiar to our readers [1]

The Statistical Committee of the Council over which Dr Major Greenwood presides have taken a large share in three industrial researches, concerned respectively with the mining, the weaving, and the printing industries, to which detailed reference is made in the Report of the Industrial Fatigue Research Board

The Dick Test for Scarlet Fever Immunity

At the City Bacteriological Laboratory in Birmingham Dr H Henry and Dr F C Lewis have continued their researches into scarlet fever immunity

By using susceptible human volunteers they have been able to titrate a measured amount of scarlet fever toxin against varying amounts of serum taken from children who have not had scarlet fever and also from those who are convalescent from the disease, and, by this method, have succeeded in showing that an attack of scarlet fever usually results in an immunity of which the degree can be measured in terms of antitoxin units

It has also been discovered that a small percentage of young children have notable quantities of antitoxin in their blood, without any other evidence of any previous attack of the disease The deduction is that these children must have passed through an attack of the disease in a form not recognised clinically Since most adults are resistant to the Dick test and also show relatively large amounts of the same antitoxin in their circulating blood without any history of an attack of the disease, a strong suggestion arises that scarlet fever as the clinicians see it may exhibit only a small percentage of a widespread infection which at present escapes detection

Dr Henry and Dr Lewis have also made a series of experiments to determine the rise and fall of antitoxin production in convalescence from scarlet fever At present their work is being directed to a satisfactory standardisation of the Dick test and to an accurate definition of the antitoxin unit In dealing with both these important problems they are acting in collaboration with members of the Council's staff at the National Institute

Diseases of the Excretory System

A record of the kidney efficiency tests, by which the progress of a large number of cases of chronic nephritis has been followed since the war, has been maintained during work done for the Ministry of Pensions This has now been completed, and the results are being correlated The investigation shows many interesting and sometimes quite unexpected results, it will give a real basis for knowledge and should prove a useful record of the possibilities of prognosis of the clinical progress in nephritis of a kind hitherto not available

At Guy's Hospital, London, Dr A A Osman has received a part-time grant for studies of nephritis which have given results of great promise His previous work had shown that in all kinds of kidney inflammation there is a fall in the bicarbonates of the blood Proceeding on the lines of a hypothesis based on this, he has worked out and tested a new line of treatment of nephritis by the administration of alkaline salts under particular conditions The results of this treatment, in its present form suitable only for hospital practice, certainly justify further trial and study The method offers at the same time a hopeful line of treatment for the prevention of nephritis following scarlet fever Dr Osman has found evidence for the existence of individuals having a special liability to nephritis after scarlet fever It will be an obvious gain if these can be recognised and given effective preventive treatment

Prof. J Shaw Dunn, working with Dr C J. Polson, has made observations on nephritis due to uranium, for comparison with results obtained earlier in oxalate nephritis, which are in course of publication Dr S L Baker, has again received a part-time grant for work on experimental nephritis, and Dr. Mona Kirkhouse has assisted Dr W E Hume at the Victoria Hospital, Newcastle-on-Tyne, in an investigation into the action of diuretic drugs Dr C Reid of the University of Aberdeen has studied the effect on renal efficiency of lowering the blood pressure in cases of high blood pressure

Vaccinia and Small-pox

Working in the whole-time service of the Council at St Bartholomew's Hospital, London, Dr M H Gordon is continuing his studies of the virus of vaccinia After an examination of the characters of the allied virus of roup, a disease of poultry, the study of vaccinia virus was resumed and an investigation made into the power of the serum of animals immunised against vaccinia both to destroy that virus in vitro and to protect a normal animal against vaccinia

In January, 1926, Dr Gordon served at The Hague upon an international committee appointed by the Health Department of the League of Nations to discuss some problems of vaccination and small-pox A scheme of experimental work was adopted to promote the standardisation of calf-lymph, and the investigation of some of the rarer abnormal results following vaccination

Captain S R. Douglas, assisted by Dr L R W Price, has been engaged in studies of vaccinia, using a strain of neurovaccine obtained by the courtesy of Mr Levaditi from the Pasteur Institute, Paris The experimental work associated with the cultivation of this virus outside the body is still incomplete Many subsidiary points of much interest have already been determined, which bear upon the generalisation of vaccinia in the body and the comparisons to be drawn between the blood-changes and the localised cellular changes in vaccinia and in small-pox respectively

Dr J R Perdrau has studied the possible interactions of the viruses of herpes and of vaccinia upon each other in the same animal, with a view to throwing light on the possibility of post-vaccinal encephalitis, a subject now under special study by the Vaccination Committee, appointed jointly by the Ministry of Health and by the Council

Dr F W Twort, working at the Brown Institution, London, is also attempting to find methods for the artificial cultivation of ultramicroscopic viruses outside the body.

"*Status Lymphaticus*"

During the past year the Committee in charge of this investigation have done the preliminary work necessary to put the scheme on a satisfactory statistical basis

In the past many of the workers engaged in the inquiry have not had the time or facilities for the critical observations necessary to give their data proper statistical value. The Committee have now appointed a number of part-time workers, mostly junior members of the pathological staffs of universities and large hospitals, who collect suitable data according to a schedule laid down by the Committee, and they receive small grants from the Council It is hoped thus to gain uniform and adequate details of the cases under investigation The Committee have also invited the coöperation of other pathologists by means of notices in the medical journals and they have provided an abbreviated form of record card for use The chief objects in view are the collection of a large series of weights and measurements of the thymus in cases of sudden death in apparently normal persons, so as to establish the normal weight of the organ and its proportion to body-weight at all ages the investigation of the associated clinical and pathological states of persons over 15 years who have "persistent" thymus glands and the critical investigation of those cases of sudden and unexplained death where at autopsy the only apparent abnormality is a large thymus

Dr D S Murray has been receiving a part-time grant for work on the thymus gland at the Royal Hospital for Sick Children, Glasgow, and the results are now available In this he has had assistance from the clinical staff, especially Dr Leonard Findlay and Mr. Alexander MacLennan and from Dr J W S Blacklock, pathologist to the hospital, under whose supervision the work has been done

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[1] THE LANCET, 1926, ii , p 1128

Special Articles.

MEDICAL RESEARCH COUNCIL.

ANNUAL REPORT FOR 1925-26.

(Concluded from p 455)

LAST week we drew attention to the survey of certain branches of research which formed the substance of the introduction to this year's annual report of the Medical Research Council A summary of the work of each department of the National Institute for Medical Research is then set out, while a separate section is allotted to the determination of biological standards and the methods of biological assay. The research work of clinical units is described under the heading of the institution where it is being carried on and then research schemes in specific subjects are considered, systematic cross references being given to work mentioned in another place This list of investigations is worth notice, for it shows how wide is the scope of the research subsidised It includes problems of child life, human nutrition, dental disease, disorders of the cardiovascular system, disorders of the respiratory system, disorders of the excretory system; disorders of the nervous system, mental disorders, the physiology and pathology of the blood; the glands of internal secretion, diabetes and insulin, tuberculosis, studies of the streptococcus and pneumococcus group, venereal diseases, filtrable viruses; canine distemper, studies of cell and tissue growth, malignant disease, radiology and radiotherapy, the biological actions of light, chemotherapy, general biochemical researches, general physiology and bacteriological researches, vision; experimental epidemiology, metazoan parasitology. The term "research scheme" does not here imply that the researches described under each heading are necessarily part of a definite plan, often it is obvious that they are in no way connected, but for convenience are grouped under a common heading On the other hand, the Council calls attention to the coexistence and activity of some 30 scientific committees who contrive without interfering with the freedom of each investigator to frame and supervise some schemes which involve the correlation of results of workers on different aspects of allied problems These committees are composed of experts who give their services, and the Council attribute to this voluntary systematic help the effective and economic distribution of the funds at their disposal Some examples typical of the work in progress are summarised below

Biological Actions of Light

This work continues to be directed by the following committee. Prof F A Lindemann (Chairman), Mr J E Barnard, Dr H H Dale, Captain S R Douglas, Prof Georges Dreyer, Sir Henry J Gauvain, Dr Leonard Hill, Dr J H Sequeira, Dr E Schuster (Sec) The Committee, at the request of the Ministry of Health, have suggested the lines on which reports should be made by the phototherapy department of various institutions receiving grants from the Ministry

Mr J H Jeffree, working under Prof Lindemann and Dr G Dobson at Oxford with a grant from the Council, is attempting to provide simple and accurate means of measuring the energy of ultra-violet rays of different wave-lengths, whether in sunlight or from artificial sources

Dr Dora Colebrook has been appointed by the Council as a whole-time worker under the direction of the Committee, for the organisation of investigations and the standardisation and recording of clinical data To this end an effort is being made by coöperation with clinicians in charge of Light Departments to select for investigation such pathological conditions as show definite and measurable results of the therapeutic action of light, and allow comparison with similar untreated cases for control In a ward reserved for light treatment at the New End Hospital, Dr Colebrook is making a special study of the action of light on chronic ulcers

Dr W S Duke-Elder has been investigating the actions of radiations of different wave-lengths upon the various parts of the eye Special attention is being given to the possible action of natural radiant energy in the causation of cataract Under the general direction of Sir John Parsons, Dr Duke-Elder is conducting an ultra-violet light clinic at the Royal London Ophthalmic Hospital The purpose of the clinic, the first of its kind in the country, is to investigate how far diseases of the eye are amenable to treatment by general irradiation with ultra-violet light, and how far the light can be used in the local treatment of diseases of the front chamber of the eye

Dr R G Bannerman has studied cases of tuberculosis under light treatment at Alton, and done related experimental work

At the National Institute for Medical Research Dr Leonard Hill and his colleagues have continued their studies of the actions of light radiations on the animal body, whether direct or indirect, and have sought to bring these into relation with the practical use of light therapy in clinical work With the aid of glass screens, the transparency of which had been determined by Dr R B Bourdillon, Dr Hill has investigated the wave-lengths of the sun rays which produce skin flush (erythema), and has found that ultra-violet rays of longer wave-length than hitherto supposed are the most active in sunlight He has also, with Dr Y Azuma, investigated the action of ultra-violet rays on skeletal muscle

Mr T C Angus has found, when comparing the effects of arcs between electrodes of different compositions that the killing time for infusoria, the photo-electric cell, and erythema of the skin may indicate very different values of ultra-violet radiation The former two indicators are affected by shorter wave-lengths of ultra-violet light, which do not penetrate the horny layer of the skin and so do not produce erythema This shows the need for some selective screen to be used with these indicators Such a screen is now being sought, the aim being to find a simple indicator of the erythema-producing dose

The Eder photometer has been found inferior to the acetone-blue gauge as a simple means for measuring ultra-violet light The acetone-blue gauge shows that, on the average, two-thirds of the ultra-violet rays are cut off by smoke and dust pollution of the atmosphere in the City of London

Many of the present uncertainties of knowledge, theoretical and practical, spring from the customary use of complex mixtures of radiations of unknown intensity and widely different wave-length Dr Bourdillon has studied the design and preparation of filters for isolating narrow bands of wave-length of ultra-violet rays so as to gain practical methods of using light of any wave-length desired, in bands of few hundred Angstrom units in width, either for research work or for curative treatment Mr Webster's work on the activation of cholesterol by light was referred to in THE LANCET of last week

Dr A Eidinow has made trial of various methods of controlling the dosage of light in clinical work

Statistics

Dr John Brownlee has been engaged during the year, with the help of Mr H E Soper, in making a review of the statistics which are used in medical and biological researches, with a view to publishing a convenient working synopsis of the best methods available for use in inquiries in those fields The work will shortly be published

Dr Brownlee has also been investigating the relation of weather to disease by new statistical methods which have been suggested in recent years These have revealed some periodicities in climatic temperature not hitherto suspected During the year Dr M Young has made for the Dental Committee of the Council a statistical analysis of data collected by Miss F H Bachrach, relative to the dental condition in groups of identical and fraternal twins and has reported on the different degrees of resemblance in dental characters in the two types of twin. The object was to ascertain the influence of the hereditary factor Dr Young has found that a closer relationship exists between identical

THE CENTENARY OF UNIVERSITY COLLEGE, LONDON.

IN connexion with the centenary celebrations of University College four public lectures have been arranged, of which the first was delivered at the College by Prof E H Starling on Feb 28th Sir John Rose Bradford, who presided on this occasion, will himself deliver the last of these lectures on University College, London, and Medical Education on May 13th at 8 30 P M, when Sir George Thane will occupy the chair The intermediate lectures will be given on March 14th and May 2nd respectively, by Sir Oliver Lodge on a Century's Progress in Physics, and by Dr R W Chambers on Philology at University College

Prof Starling took for his subject

A Century of Physiology

He gave a masterly survey of the progress of physiology from the time of Harvey to the third quarter of the nineteenth century, when, he said, the English physiological school might be said to have begun, its beginning being synchronous with the date of the foundation of the Physiological Society—*namely, 1876* He *continued* —

When we are tempted to be annoyed by the abuse and misrepresentation of those who bend their anti-scientific bias in the attempt to prevent experiments on animals, it is well to remind ourselves how much physiology in this country owes to the anti-vivisectionists The antivivisection agitation, which has periodic exacerbations in this country as misguided old ladies leave large sums of money to be expended in such activities, had been especially active in 1874 to 1876 There had been a Royal Commission on the subject, and the first Act legalising and controlling experiments on animals was passed in 1876 It was the persecution and abuse to which the small band of physiologists was subjected that suggested to them the advisability of forming a society for mutual help and protection, and for the interchange of ideas, and after a preliminary meeting at Burdon Sanderson's house in Gordon-square, the Physiological Society was founded in 1876, Thus the Society has till the present time maintained the aims and objects for which it was founded, for mutual friendship and intellectual intercourse among working physiologists In no country in the world do we find all the physiologists as in this country, working as one team, free from all cliques or jealousies, and interested only in helping one another and in advancing the science to which they are devoting their lives From the time of its foundation physiology has advanced in this country with ever-increasing rapidity The Society now numbers over 400 members, and the result of their common labours has been to put the English physiological school in the first place among civilised countries

[Prof Starling proceeded to recall the part played by the Physiological Laboratory at University College in bringing physiology in this country to its present position He spoke of the work of Gaskell at Cambridge, and of Sanderson on the physiology of heart-muscle leading up to the investigations of Ringer and later of Sir Thomas Lewis at University College Gaskell's work on the heart and on its nervous supply led him in another direction the investigation of the sympathetic system, which was continued and developed at University College by Sir John Rose Bradford in conjunction with Bayliss, Dean, and Prof Starling himself He continued —]

Localisation of Function in the Brain

Another important chapter in physiology was opened in part from University College Since the time of Flourens the brain had been regarded as acting as a whole, which no doubt it does, but this force was interpreted as indicating that there could be no localisation of function in this organ and that all parts of the brain had equal actions on, and were equally affected by, all parts of the body In 1870 Fritsch and Hitzig in Germany showed that stimulation of certain portions of the cerebral cortex of the dog's brain evoked movements limited to certain groups of muscles, the muscles affected depending on the locality of the stimulus These experiments were then taken up by Ferrier at the West Riding Asylum and by Ferrier in conjunction with Yeo at King's College, and the fact of localisation was confirmed and extended to the brain of the monkey These researches were the starting-point of a whole number of careful investigations carried out at University College by Schafer, Horsley, Beevor, Mott, and Risien Russell, and at that time the neurological school in England was more fruitful than that of any other country The story was continued by Sherrington, a pupil of Michael Foster at Cambridge, first at St Thomas's Hospital, then at Liverpool and finally at Oxford Sherrington's researches have transformed our conception of the activities of the central nervous system and offer the only reliable basis for a physiological psychology While using the same methods, and inspired by Sherrington's teaching, Magnus, of Utrecht, has built up a conception founded on experimental data of the reflex activities of the lower parts of the brain which, with the results obtained by Sherrington and those of recent years by Pavlov in St Petersburg, give us a working scheme of the whole activities of the central nervous system from their lowest to their highest manifestations From these researches we have obtained an understanding of the manner in which the activities of the body are integrated by the central nervous system in relation with each other and with events in the external world There is, however, another method of integration by which the *consensus partium*, the unity of the whole animal body, is studied—namely, the method of chemical integration When Claude Bernard demonstrated the production of sugar in the liver and found its mother substance, glycogen, he spoke of the sugar as an internal secretion of the liver since it was furnished by the liver for the use of the other organs of the body The recent researches of A V Hill in this College, which prove that the muscle is dependent on carbohydrates and on these alone for the production of the energy of muscular contraction, and the experiments which I am carrying on at the present time with Leonard Bayliss and Muller (which appear to show that the same holds good for the energy of the contraction of the heart) are evidence of the great importance of this internal secretory function of the liver But nowadays when we speak of internal secretion we do not include under this heading the formation of sugar by the liver There is another class of chemical correlations in the body in our knowledge of which, again, the first steps were taken in this College After Gull and Ord had shown that myxœdema was associated with atrophy of the thyroid gland, Horsley, in confirmation of old experiments of Schiff, showed that this condition could be brought about by excision of the thyroid gland and could be removed by reimplantation of a thyroid gland This led to the treatment of the disorder by oral administration of the dried gland, which is now in general use Of the other so-called ductless glands we knew little except what clinical evidence supplied Addison had shown that the disease bearing his name was associated with atrophy of the suprarenals Marey called attention to the association of acromegaly and giganticism with enlargement of the pituitary gland Schäfer and George Oliver in 1895 showed that from both these organs extracts could be obtained which had definite physiological effects, though it was difficult to correlate these effects with those clinical phenomena which had already been associated with atrophy or enlargement of these glands

Secretin

It was not till the discovery of secretin by Bayliss and myself in 1902 that we recognised that these so-called internal secretions were merely isolated

MEDICINE AND THE LAW.

Professional Expulsions

The disqualifications associated with osteopathy are naturally mentioned in an article in the *Solicitors' Journal* of Feb. 12th dealing with the problems of expulsion from a profession or trade-union The article begins with the professions of barristers and solicitors and passes on to summarise the cases decided in the nineteenth century in connexion with the Medical Act It then comments upon *re* Bynoe, a decision of the year 1900 wherein the court held it had no power to direct the rehearing of the case of a practitioner originally disqualified for felony, though admittedly the evidence on which the criminal conviction was based was afterwards found to be unsatisfactory The article suggests that the legislature might usefully reverse the decision in *re* Bynoe and give the court power to direct a rehearing on facts sufficiently strong to warrant it as a matter of justice "It cannot be doubted," the writer continues, "that, had the court possessed this power and been invoked, it would have required the Medical Council to reconsider the case of Dr Axham, and, in view of the latter's last illness, without undue delay" Not everyone, however, will agree that this matter is so free from doubt. What were the fresh facts discovered in Dr Axham's case? His illness, however much we may regret it, was certainly not a fresh fact upon which the disciplinary decision of the General Medical Council could reasonably be reopened in a court of law The *Solicitors' Journal* considers that the Axham case shows the necessity for revising the constitution of the General Medical Council and permitting an appeal to open court from its decisions as in the case of the solicitors' profession The Council, it is said, is too unwieldy a body, the members nominated by outside corporations might be eliminated, the Council should consist of representatives of the profession and persons nominated by the Crown, who should not all be doctors but might include retired judges if the latter were willing to serve Concerning these suggestions, which some will approve, a good deal might be said For the moment there is another passage in the article which is worth quoting The writer mentions Sir H Barker as an unregistered practitioner, a quack from the point of view of the Council, and yet "found by the public to be a brilliant healer in his own line," later honoured by the King with a knighthood "It is hardly too much to say," he adds, "that in his particular branch of osteology he has been the leader, and Dr Axham's infamy was to discover his powers before the profession and even before the general public had done so" Against this statement it seems reasonable to enter a little protest If Acts of Parliament are devised to restrain the activities of the unqualified, it is not really possible to relax the restrictions in the case of an individual because of his peculiar, though untested, abilities

It is probable that much popular prejudice is aroused by the words "infamous conduct" They are not confined to the Medical Act They reappear in the Apothecaries Act of 1874, and, with the addition of the alternative word "disgraceful," in the Dentists Act of 1878 Disgraceful conduct is made a ground for removal from the Register in the Veterinary Surgeons Act of 1881 The expression "infamous" has a rather archaic sound, if it were eliminated some other expression must be substituted to convey the idea of conduct which is professionally dishonourable and reprehensible in a marked degree. No one, surely, quarrels with the principle that a profession should have power to define its own traditions and standards and to enforce them The tendency of to-day is to extend this principle rather than to restrict it Architects and members of other professions are seeking statutory powers of this nature In the last few days there has been presented to Parliament an Engineers Bill "to provide for the registration and to regulate the qualifications of engineers" The Bill proposes to give power to remove an engineer from the Register "owing to conviction of any heinous offence or to unprofessional conduct of a serious nature" Infamous, disgraceful or merely serious, every profession knows the kind of conduct it reprehends and the necessity of some system of discipline

Osteopath's Unsuccessful Claim for Fees

Nobody can recover fees in a court of law "for any medical or surgical advice, attendance, or for the performance of any operation" unless he is a registered medical practitioner Does this principle, which is to be found in Section 32 of the Medical Act of 1858, apply to osteopaths? Does an osteopath give surgical advice and perform operations? The answer to these two questions is apparently in the affirmative The deputy county court judge in the Bloomsbury Court decided on this ground against an osteopath's claim in a case reported in the *Times* of Feb 25th The plaintiff had been called in to give osteopathic treatment to the defendant's wife He stated that he found her suffering from nervous debility and facial neuralgia He found that one of her legs was longer than the other, which fact, he considered, contributed to the debility His charges were 3 guineas for each consultation, and 2 guineas for each subsequent visit His total claim in the county court was £30 9*s* He stated that he obtained his degree in America, that no degrees were conferred in respect of osteopathy in this country, and that he made no claim to be legally recognised The defendant pleaded that the treatment was unnecessary and unsuitable and that the plaintiff was not qualified. The deputy judge referred to the section of the Medical Act already quoted and doubted whether the plaintiff was not debarred thereby from recovering fees, the fees being charges for medical or surgical treatment The plaintiff replied that he believed it had been held that osteopaths could recover, they did not claim to give medical or surgical treatment The judge said it was not a question of what osteopaths claimed to do, but of what they in fact did He gave judgment against the plaintiff, though willing to give leave to appeal if desired Of course, as the judge observed, if an osteopath obtains payment of his fees in advance, the Medical Act does not to this extent apply

Electrical Treatment by Automatic Machine

Two automatic machines were installed in the shop of a Birmingham confectioner and hairdresser They were called "Pickwick Automatic Electric Amusement Machines." In the centre of one of them (produced for inspection in the Court of Criminal Appeal) was this inscription —

> "Place ½*d* in slot and grasp knobs for electric treatment Medically recommended for the following complaints nervousness, neuritis, lumbago, neuralgia, rheumatism, sciatica"

The coin being placed in the slot, an electrical current was felt by anyone who grasped the knobs, but this was not all, for at this point science ended and amusement began By turning another handle the current was switched off and a ball appeared which fell through rows of pegs and passed out through one or six disappearing-places The person who put the halfpenny in the slot had the chance to catch the ball in a cup in its progress before it disappeared If he succeeded, a disc dropped out of another slot which entitled him to repeat the performance and meanwhile to get a packet of sweets or cigarettes The legal question was whether the game was one of chance or of skill In the Birmingham case three persons were convicted of keeping the confectionery and tobacconist business as a betting-house because of the presence of these machines upon the premises, and the Court of Criminal Appeal upheld the conviction It was argued for the appellants that the investor of a halfpenny got primarily an electric shock, and that was the consideration for his investment But the court declined to accept the so-called medical treatment as removing the transaction from the category of gambles

Correspondence.

"Audi alteram partem"

THE CANCER PROBLEM AND THE EDUCATION OF THE PUBLIC

To the Editor of THE LANCET

SIR,—At a recent meeting of the Epidemiological Section of the Royal Society of Medicine the possibility of reducing the present mortality of cancer of the breast and uterus was discussed.[1] The openers made out an excellent statistical case in favour of such possibility but received no answer as to its practicability May it not be of value to discover the views of a larger section of the profession?

In attacking a problem of this nature it is obviously necessary to accept facts as they are not as they might be or ought to be; but there seems to be a more or less general tendency to idealise them For this reason far too much attention is paid to surgery in the treatment of the disease Surgery is merely a makeshift It is, perhaps the most efficient method at our disposal in present circumstances, but the terrible mutilation which it causes renders it and must always render it a most undesirable resource In this, as in many other researches, thought follows a beaten track instead of exploring new fields. Hitherto all suggestions have been such as offer little hope of advance

For instance, the common cry is for earlier diagnosis, but no attempt is made to define what is meant by the term In many cases diagnosis can be made at sight the disease is so advanced and in one sense earlier diagnosis is impossible—it could never be made before the patient is seen This should not be considered a matter of earlier diagnosis but of earlier application for advice On the other hand. given the patient, diagnosis is probably already possible as early as it is ever likely to be Cancer is a steadily progressive disease, apparently purely local in its origin, but sooner or later spreading to distant parts There is good reason to believe that the malignant process may be in existence for some considerable time before symptoms or signs of any kind give warning of something amiss Consequently in a large proportion of cases it may well be (and it seems to me that it certainly is) that by the time diagnosis is possible the disease has spread so far that cure is impossible This is not. and is not intended to be an argument against making every effort to establish a diagnosis in the earliest stages; it is a very strong argument against expecting by this means to effect any great improvement on the present results of treatment; and a still stronger argument against focusing attention too strongly upon this method, and not seeking everywhere for a better Even should some serological or biochemical test eventually be found whereby cancer may be certainly diagnosed the difficulty will not be overcome for the test will only be applied after the appearance of some clinically suggestive evidence has been found It thus follows that not early diagnosis (in the above sense) but early applications for treatment should be considered the more important factor at the moment And how can this be brought about? Only in one or both of two ways—viz, by education of the public and education of the profession

Compulsory education has failed to enlighten the ignorance of a large part of the public voluntary education must fail in an even larger part Many could never be educated many more have no desire to be educated and even of those who could be educated many would remain uninfluenced because of other considerations In speaking of malignant disease of the breast and uterus apart from the modesty of sex which education might to some extent modify fear plays a large part in preventing recourse to a doctor—fear of the operation which the woman expects to be recommended; fear, even of having her suspicions confirmed, and learning that what she suspects to be cancer is so in fact Not a few would prefer to live in a fool s paradise and try to persuade themselves that all is well rather than know the truth That any considerable number of women who could be taught by such educational methods, are now ignorant of the significance of certain symptoms and signs I find it difficult to believe But even if by this means, only a life here and there is saved then it is worth while doing To organise a plan of public instruction, to teach all that is possible, to do everything practicable to induce patients to seek early advice is highly desirable, but we must not expect the results to be apparent as a great fall in the mortality from cancer.

Nor does education of the medical profession offer much hope, for practitioners, as a body are already hard-working conscientious and substantially accurate in their knowledge But difficulties are meant to be overcome. and clearly anything that can be done by education should be done thoroughly and without delay Nothing in this letter is intended to encourage the adoption of an attitude of idleness and despair On the contrary, its whole aim is to direct attention to the fact that so far little has been done to solve the problem and that little can be done along the lines generally followed and to urge the necessity for more investigation the opening up of new ground

Pessimism is apparently not popular in this connexion so much that might be said I leave unsaid In one direction at any rate. optimism appears justified Of recent years enormous advance has been made in the investigation of the cause of cancer The part played by chronic irritation has been thoroughly established But more must be done Is all cancer the result of irritation? And what are the irritants responsible? That both these questions will in time be answered there is no reason to doubt and the answer is the crying need of the moment I do not by any means hold that once the cause is known a cure will follow but it should prove possible by removing the cause. by preventing its coming into action, to prevent the development of the disease

What is required, then, is research and more research. by thoroughly competent workers into the causation of cancer · for only thus is it probable that any material decrease in the present mortality of the disease can be effected Much is already being done but much more might be done by those who are at present hampered and restricted by inadequate accommodation and insufficient assistance for the proper carrying out of their work Until some more profitable line can be discovered. it is to this end. it seems to me that effort should be chiefly directed

I am, Sir yours faithfully.

STANLEY WYARD

Upper Wimpole street W, Feb 27th 1927

THE BLOOD-GROUPS OF "IDENTICAL TWINS"

To the Editor of THE LANCET

SIR—May I bring forward still another point of great interest suggested by the correspondence under the above heading I have wondered for a long time past—as, doubtless many others have. though I have never actually seen the suggestion anywhere—whether an antagonistic "blood-grouping" of the fœtus can possibly account for eclampsia or other pregnancy toxæmias? Until Mr. Geoffrey Keynes s letter appeared in THE LANCET (Feb 26th) I did not know definitely that the blood-groups of mother and fœtus were sometimes different. but this being so it does not seem unreasonable to suggest that when this factor is present we have a very possible focus of pregnancy toxæmia It would be helpful to know if any research has been undertaken upon this point

I am, Sir, yours faithfully

Bath Feb 25th 1927 DOUGLAS A MITCHELL.

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[1] THE LANCET, Feb 5th, p 303

examples of a great system of correlation of the activities, chemical and otherwise, of different organs, not by the central nervous system but by the intermediation of the blood stream, by the discharge into the blood stream of drug-like substances in minute proportions which evoked an appropriate reaction in distant parts of the body When we were investigating the conditions which cause the secretion of pancreatic juice, it had long been recognised that this juice is poured out into the intestine as the semi-digested food from the stomach enters the intestine The secretion of pancreatic juice was regarded as analogous to the secretion of saliva, which is poured into the mouth when food is taken into this cavity, and so assumed, like the latter, to be due to a nervous reflex We found that the introduction of acid into a portion of the small intestine entirely free from any nervous connexion with the rest of the body evoked a secretion of pancreatic juice This must, therefore, have been due not to a nervous reflex but to a messenger of a chemical nature carried in the blood stream, which was the only means of communication between the loop of intestine and the pancreatic gland This chemical messenger we found in fact to be produced in the mucous membrane of the gut and discharged into the blood stream under the influence of acid We called the body *secretin* and recognised that it was only one of a large class of similar bodies which function in the chemical correlation of the different parts of the body

[Prof Starling referred to the other hormones since described and to the other substances equally essential to the carrying out of the normal functions of the body, known as vitamins, and proceeded as follows —]

At the present time the volume of work being carried out in the Physiological Department with the greater facilities placed at our disposal by the gift of the Rockefeller Foundation is greater than at any previous period of the College history Men and women are constantly engaged in research in the physiological and biochemical departments There is probably no subject which I have mentioned in my review of the work of the last 50 years which is not the subject of investigation In my own department I have returned to some of the questions which agitated Harvey and which he left for "future inquiry"—namely, the method by which the heart can adapt its marvellous activities to the needs of the body as a whole, so that it can beat fast or slow, at a high or a low blood pressure, and alter its output and the volume of the circulation six to ten times, according to the activities of the body, and especially according to the muscular activities In this, as in every other investigation of an organ, we must proceed by analysis and by synthesis First isolate the organ and, keeping it alive, study its powers and its reactions to such mechanical and chemical conditions as may be imposed upon it in the body Thus one by one we have to reconstruct the influences to which it is subject in the body, chemical and nervous, and out of our experiments build up a picture of the total of its reactions as they occur in the intact animal We have seen in this way how to a large extent the power of adaptation is inherent in the properties of the muscular wall of the heart itself, but how under ordinary circumstances this mechanism is economised and anticipated by the action of the nervous system, which can quicken or slow the rate of the heart, raise or lower the blood pressure, increase or diminish the force of contraction in accordance with impulses proceeding from the heart, from the arteries, from the periphery of the body, as well as from the cerebral hemispheres themselves It is especially to Anrep that we owe the elucidation of the reflex mechanisms for the control and regulation of the heart's action

But it is with the past, not the future, of physiology and the physiological department of the College that we are to-day concerned That past is full of promise and our actual gains bulk little in comparison with what we hope and expect to achieve So I would take exception to a recent description of the present time as the "golden age of medicine." We associate "a golden age" with an epoch of great achievement which then dies away and comes to an end But physiology and the science of medicine have hardly begun As I have pointed out, the greater part of the physiological edition of to-day dates from the last 50 years, and has been raised within the lifetime of many of us And every year more workers and greater powers are enlisted in the service of research, so that the rate of increase of knowledge grows in geometric proportion Nor can we foresee any time at which this growth can come to an end It is not like the town of Babel, erected as a monument of arrogance and vanity and brought to an end by a strife of tongues Unless the scientific worker approach his task with humility and self-abnegation—the brick he would contribute to the giant edifice of science crumbles away even before it is in position And the strife of tongues is impossible, for science throughout the world has but one language—that of quantity, and but one argument, that of experiment Experiment has dethroned the word So while civilisation endures in any part of the world the growth of science must go on, and with it an ever-increasing control by man of his environment and of his destiny

The Services.

THE DIRECTOR-GENERAL, R N

Surg Rear-Admiral Arthur Gaskell, C B, O B E, who, as stated below, has been appointed to succeed Sir Joseph Chambers as Director-General of the Medical Department of the Navy, joined the Service in 1893, became staff surgeon in 1902 (for conspicuous professional merit at Wei-hai wei), fleet surgeon in 1906, surgeon captain in 1920, and rear-admiral in 1923 He has been director of medical studies and professor of hygiene, No 1 hospital ship, A.D M S, R N Division, R N Hospital, Simonstown, and also in temporary charge at the R N Hospital, Chatham

TEMPORARY COMMISSIONS AT HOME STATIONS IN THE R.A M C

The War Office announces vacancies in the Royal Army Medical Corps for temporary officers to be employed at home stations Candidates for these commissions must be registered medical practitioners, under 55 years of age, and they will be required to give an undertaking to serve for at least six months After that period appointments will be terminable by a month's notice on either side Accepted candidates who fulfil the necessary conditions will be considered for permanent Commissions if they so desire Pay for those who have not previously served in the Royal Army Medical Corps will be at the rate of £600 per annum, but the initial rate for those who have served for not less than 12 months as officers of the Corps will be £650 per annum In each case there will be an outfit allowance up to £40 Applications should be sent to the Under Secretary of State, The War Office, Whitehall, S W 1, from whom full particulars may be obtained

ROYAL NAVAL MEDICAL SERVICE

Surg Rear-Admiral A Gaskell, C B, O B E, has been appointed to the *President* for duty inside Admiralty, and as Director-General of the Medical Dept., vice Surg Vice-Admiral Sir Joseph Chambers, K C B, C M G

Surg-Lts —J G Currie to *Beaufort*, and E C Downer to *Flinders*

ROYAL ARMY MEDICAL CORPS

Lt-Col E P Connolly, from R A M C, to be Col, vice Col J W H Houghton, to ret pay

The undermentioned Lt-Cols, Reg Army Res of Off, to be Majs, whilst re-empld, Royal Warrant for Pay and Promotion, and relinquish the rank of Lt.-Col J L. Wood and W E C Lunn

Capts to be Majs H A. Rowell, C F Anthonisz, and S O Dolan

Temp Lt R L J Le Clezio relinquishes his commission

ROYAL AIR FORCE

Flying Offs L. C Palmer-Jones and T W Wilson to be Flight Lts

Temp Lt. W D Guyler (General List, Army Dental Surgeon) is granted a temporary commission as a Flying Officer on attachment to the R A.F He will continue to receive emoluments from Army sources

> "Thus the disease makes its progress from the Horse (as I conceive) to the nipple of the Cow, and from the Cow to the Human Subject
>
> "Morbid matter of various kinds, when absorbed into the system may produce effects in some degree similar but what renders the Cow Pox virus so extremely singular, is that the person who has been thus affected is for ever after secure from the infection of the Small Pox, neither exposure to the variolous effluvia, nor the insertion of the matter into the skin, producing this distemper"

He produced no proof that grease could cause cow-pox on the teats of a cow; or did he make any experiments, as he might easily have done to test the truth of his assertion

Jenner, after the publication of the inquiry was soon inundated by reports from medical men and veterinary surgeons of repute in the neighbourhood of persons who were attacked with small-pox after having had cow-pox He did not hesitate to get over the difficulty He published "Further Observations &c, &c," in which he states that there was a *spurious* cow-pox the use of which would account for the failures He writes —

> "Would it not be discreet for those engaged in this investigation to suspend controversy and cavil until they can ascertain with precision what *is* and what *is not* the genuine Cow Pox"

Again—

> "One of the first objects then of this pursuit, as I have observed, should be, to learn how to distinguish with accuracy between that peculiar pustule which is the *true* Cow Pox, and that which is *spurious* Until experience has determined this we view our object through a mist"

He here admits that the *genuine* and *spurious* cow-pox are indistinguishable The suggestion of *spurious* cow-pox, however served well his purpose Whenever small-pox followed cow-pox, the latter was *spurious*, and, on the other hand, if perchance small-pox did not develop that was evidence that the person was protected by the *true* cow-pox—the horse-grease cow-pox of Jenner!

We are now in a position to ask What was the "wonderful discovery" of Jenner? He did not discover cox-pox That was universally known He did not discover that cow-pox was a preventive of small-pox He knew it was not The only discovery he laid claim to was the horse-grease cow-pox And there is no such disease Indeed, he was wise enough to drop it on the advice of Woodville, who wrote him "the very name of horse-grease was like to have wrecked the whole concern"

In conclusion, let me quote from M Fabre, one of the greatest observers who ever lived —

> "An incomplete observation wrongly interpreted, sets the story going Then come the compilers who faithfully hand down the legend, the unsound fruit of the imagination and error, confirmed by repetition becomes an article of faith"

I am Sir yours faithfully

H H TAYLOR, J P F R C S

Hove, Feb 26th 1927

CONTRACEPTIVES

METHODS IN COMMON USE COMPARED

To the Editor of THE LANCET

SIR,—Having special interest and practical experience in the ordinary "birth control" methods, I should like to enlarge upon or criticise Dr Giles's comments in his address on the subject reported recently in THE LANCET Whether or no we approve, it is obvious that the whole question grows in importance and that the practice is very widespread The facts must be made clear and faced frankly

When Dr Giles says that restrictions early in married life rob marriage of much of its proper "romance" I suspect he must be thinking of the minority of comfortably-placed parents of middle and upper classes There is little "romance" among the overcrowded people of the industrial areas where I work, and this "romance" is not fostered by endless childbearing, starting in young girls on the threshold of life, who, a few months after the marriage ceremony, are in the throes of labour, with all the real freedom of youth ended ere it has scarce begun Pregnancy and parturition themselves are under most conditions, anything but romantic—they are too often the beginning of economic difficulties, home imprisonment, changed bodily appearances (if not changed bodily health) which thrust maidenhood into matronhood rudely and abruptly

Disillusionment can also, of course, follow childless unions, but surely there is a happy mean? Anyway, I do not believe the widespread use of contraceptives is always due to selfishness—may it not be equally well *an ideal?* Could we not credit people with a real desire to avoid the wastage and misery of the hordes of unwanted, useless lives that are thrust daily into this world? Is the daily prayer and hope that sexual intercourse will not result in undesired pregnancy any better than the mutually agreed effort to make certain it won't? The very fact that the question is controversial and difficult commends it to our impartial study Admitting its popularity, let us have proper teaching and regulation rather than ignorant misuse.

The *methods themselves* need a more detailed analysis

1 *Abstinence*—I quite agree with Dr Giles's remark on the impracticability of this, but he seems inconsistent when he says previously, "Let such people" (i e, those who marry but avoid pregnancy to "enjoy" their youth) "enjoy themselves and have a good time, and wait to get married, &c," and this, under modern conditions We all know what a "good time" means in these days, it entails considerable *abstinence* under constant sexual stimulus and too often ends in irregular intercourse (or its substitutes), disease and illegitimacy. So many of the sexual troubles, direct or indirect, of our young people are due to *postponement* of marriage till long after the age of fullest sexual vigour and to the *disharmony* which this produces Better, surely, a childless marriage at first than the daily unpublished tragedies of perverted and promiscuous "love" As Dr. Giles says. "It asks too much of human nature and opens the door to irregular practices and unhappiness"—and far worse

But why this common suggestion that sexual congress is a peculiar weakness, nay, crime almost of *human* nature Is it not the most natural and powerful instinct through the whole fauna and flora of the world? Under proper conditions there is nothing to be ashamed of It is this strange teaching of hypocrisy and secret, censorial attitude which does so much harm The forbidden and mysterious have always an unhealthy attraction

2 *Restriction to Safe Period*—Not only is this most unreliable, but reduces coitus to a *regular habit* or ceremony every month and ignores the all-important æsthetic and affectionate aspects, &c, as well as all consideration for the desires and moods of the female partner At the risk of being accused of "eroticism," I would emphasise the importance of *mental harmony* and mutual romanticism in an act which affects so profoundly every cell of the body and every emotion of the mind This especially applies to woman, and if there is any choice she should be the one to make it. In my opinion the method, if it can be called one, is to be condemned as useless or mentally harmful

3 (*a*) *Coitus Interruptus*—I would not only not recommend this, but condemn it wholesale, as the *worst of all* for these, among other reasons already mentioned by other authorities It is not only unnatural but, for most men impossible without unpleasant practice Even with this practice, *fear of failure and the strain of divided attention*, on both parties, have serious effects on the natural and *mutual* climax of the act It abolishes the equally *natural rest* and mutual *support* of the parts during deturgescence If successful it produces a sense of *revulsion* (if only by the misplacement of semen) in rightly sensitive women, while, even so it is quite *uncertain*, since under sexual excitement, there may be leakage of

VENTILATION IN THE HOME

To the Editor of THE LANCET.

SIR,—Public opinion in favour of reducing our output of domestic smoke has undoubtedly been quickened by the recent shortage of coal, and people generally are showing a much closer interest than heretofore in the problem of heating and ventilating the home But reforms are seldom achieved without some abuses, and one effect of the increased demand for various smokeless appliances as an alternative to the coal grate has been the marketing of many kinds of cheap heaters which do not fulfil the most elementary requirements of domestic hygiene I refer particularly to so-called portable heaters—gas, oil, and electric—which either discharge the products of combustion into the air of the room or, because they are unconnected with a chimney or flue outlet, fail to induce an adequate influx of fresh air, which is essential to the proper ventilation of a room

Medical men naturally have a keen appreciation of the importance of ventilation in the home, but perhaps it is not fully realised that certain types of flueless heaters—especially gas-heaters—which may be safe enough in corridors, halls, churches, large rooms, and other places where there is a constant and free circulation of air, are a positive menace to health when used in the bedrooms or living rooms of the average-sized dwelling-house While, therefore, as one whose work is largely devoted to mitigating the smoke evil, I am not inclined sweepingly to condemn every form of heater which is not connected with a chimney or a flue of adequate size, I would lay it down as a general principle that flueless gas stoves for heating living rooms should be looked on with suspicion The size of the apartment and the amount of free ventilation are determining factors in deciding on their suitability

No fuel-using appliance consumes its own products and so-called "condensing" stoves condense little else but water When coal-gas is completely burned, the products of combustion consist chiefly of carbon dioxide and water vapour, these escape directly into the surrounding atmosphere, unless led into a suitable chimney or flue If a flueless heater is correctly designed, and no mistake in working it or leakage occurs, the products of combustion are comparatively harmless An ordinary seven radiant gas-fire connected with a chimney burns approximately 30 cubic feet of gas per hour and produces as much carbon dioxide as about 15 men With a flueless fire it would be necessary to burn only about 20 cubic feet per hour, but then all the products would enter the room, and, so far as carbon dioxide is concerned, the effect would be equivalent to about 10 men Unfortunately, this is not the whole story. Probably the greatest danger is the production of CO when the gas-fire is not correctly designed, and the flames, owing to proximity to cool surfaces, are not allowed to complete their combustion to CO_2. The same result might follow in the case of a flueless heater of correct design if the ventilation is not sufficient to prevent the accumulation of CO_2 and provide oxygen to ensure complete combustion

In rooms heated by flueless gas-fires and not adequately ventilated, the humidity of the air rapidly increases while the oxygen is depleted, and both of these have injurious effects This ventilation difficulty is a very real one, as people are tempted to cut down the supply of fresh air to a minimum in order to economise heat, which reacts unfavourably to the use of flueless heating of any kind There is again the danger of leakage from the flexible tubes with which flueless gas-fires are often fitted The points I would stress are those amplified by Sir Napier Shaw and myself in our book "The Smoke Problem of Great Cities" —

1 Gas-fires should have a free entrance for air to the chimney, independent of the flue drawing the products of combustion from the fire This is provided for in the modern "ventilating" gas-fires by an air entrance under the canopy

2 The heating and ventilating of houses should be inseparable, and any method of heating which does not itself produce a ventilating effect should be looked on with suspicion

The foregoing remarks will, I trust, be of some assistance to members of a profession, which is necessarily closely interested in the question of ventilation of the home and has done so much to rouse public opinion to a realisation of the baneful effects on health of smoke and fog

I am, Sir, yours faithfully,

Feb 26th, 1927 J S OWENS

JENNER'S REAL CLAIM

To the Editor of THE LANCET

SIR,—In Dr James Bennett's address entitled Pending Changes in the Administration of Vaccination, in THE LANCET of Feb 5th, he refers to the "wonderful discovery of Jenner" The "discovery" was made so long ago that probably very few men at the present time are aware of what Jenner really claimed to have discovered

Cow-pox is a vesicular disease affecting the cow's udder in milk It is contagious, not infectious, and bears only the remotest resemblance to small-pox In the eighteenth century it was prevalent over the whole of the United Kingdom and elsewhere There was a myth existing in the West Country, purely local, as so many superstitions are, that milkers who had contracted cow-pox were rendered immune to small-pox Jenner, being a general practitioner in Gloucestershire, was quite familiar with this myth He frequently broached the subject to his medical colleagues at his club (the Convivio-Medical at Alveston), and according to Baron, made himself somewhat of a bore, as most of them had frequently seen cases of small-pox following cow-pox, and knew it to be only a superstition, and told him so Jenner knew that cow-pox, as generally met with, was not a prophylactic against small-pox

Let us now see what he himself always claimed to have discovered In 1898 he published an essay (which the Royal Society had declined to publish) entitled "An Inquiry into the Causes and Effects of Variolæ Vaccinæ, a disease discovered in some of the Western counties of England, particularly Gloucestershire, and known by the name of the Cow Pox" It is important here to notice, first the use of the word "discovered," and secondly, that he states that cow-pox was small-pox of the cow Not once in the body of the inquiry does he attempt to justify such an outrageous statement

I proceed to quote from the inquiry —

> "There is a disease to which the Horse, from his state of domestication, is frequently subject The Farriers have termed it *the grease* It is an inflammation and swelling in the heel, from which issues matter possessing properties of a very peculiar kind, which seems capable of generating a disease in the Human Body (after it has undergone the modification I shall presently speak of), which bears so strong a resemblance to the Small Pox, that I think it highly probable it may be the source of that disease

> "In this Dairy Country a great number of Cows are kept, and the office of milking is performed indiscriminately by Men and Maid Servants One of the former having been appointed to apply dressings to the heels of a Horse affected with *the grease*, and not paying due attention to cleanliness, incautiously bears his part in milking the Cows, and some particles of the infectious matter adhering to his fingers When this is the case, it commonly happens that a disease is communicated to the Cows, and from the Cows to the Dairy Maids, which spreads through the farm until most of the cattle and domestics feel its unpleasant consequences This disease has obtained the name of the *Cow Pox*"

Of course, this is stultilogical Grease is seborrhœa of the horse's heels He then gives a fairly accurate description of the natural cow-pox affecting the cows and milkers if he had never seen the optician's winking-eye sign It would be a simple matter to compile a formidable list of such errors from our case-books, yet we would never expect to find any *real damage* done to the eyes Mr Caddy, by almost apologising for a non-existent danger of unqualified practice, has concealed the real danger—for discomfort and loss of efficiency is a real danger to the community

I would agree with Mr Caddy's suggestion that the ophthalmic panel should consist of men practising ophthalmic surgery only Human nature being what it is, we all agree that it opens the door to abuses, to give doctors the opportunity of referring cases for ophthalmic benefit to a member of their own firm One has to admit that, under such circumstances, patients may be referred unnecessarily. Similarly, a man who goes into an optician's shop will frequently have considerable pressure put on him to buy a pair of glasses whether he needs them or not

Mr Caddy's penultimate paragraph prompts me to apply to Murray's New English Dictionary, where I find—Optician a maker of, or dealer in optical instruments Oculist one versed in the knowledge or treatment of the eyes

One might therefore define an "unnecessary" interview with an ophthalmic surgeon as an interview with him by a person who had no trouble with his eyes If a person has any trouble with his eyes, the man to whom he ought to go is the oculist, and the interview is then not "unnecessary"

After all, to whom does the wealthy man or the educated man go if he is in trouble with his eyes—he goes to an oculist and if glasses are required he has them made by an optician To whom does the poor man go—to perhaps the same oculist at a hospital, where his prescription is made up by a dispensing optician This is the ideal way to go about it, and there is no unnecessary waste of time—the optician takes just as long as, or even longer, than the oculist to test the vision The people who support the sight-testing optician are getting only second-best, inexpert and not disinterested advice, and one is sorry to see a surgeon of repute countenancing such a system —I am, Sir, yours faithfully,

ALEX G LUMSDEN

Wimpole street, W, Feb 28th, 1927.

AN APPEAL FOR SUPPORT

To the Editor of THE LANCET

SIR,—I beg that you will kindly permit me to make an appeal in your columns for a monetary grant in aid of my researches, as I have failed to get one from different sources appealed to, and my work is greatly hampered for lack of funds

We have found here that toxins occur in the blood of animals treated by liver grafting and have published a note on that in the *Journal of Physiology*, December, 1926 We can now state that similar toxins result from the action of certain drugs and probably from certain methods of procedure to be published very soon These facts seem to have an important bearing on Rontgen sickness, on blood transfusion, and on many biological problems which interest the medical profession

I am, Sir yours faithfully,

D T BARRY, F R C S, M D

Physiological Department, University College, Cork,
Feb 25th 1927

FEDERATION OF THE HEALTH RESORTS OF FRANCE —An information bureau has been established in London by this Federation, whose full title is the "Union des Etablissements Thermaux et Stations Climatiques de France" New offices have been taken at 19A, Tavistock-square and Mme Juppé-Blaise has been appointed manager Full information will be available at the bureau concerning the spas and health resorts of France, and arrangements can be made through it for travelling facilities and for hotel accommodation The new organisation has been planned to give full replies to all inquiries concerning residence in France

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Dr Haden Guest

DR HADEN GUEST, who has been a member of the Labour Party in the House of Commons, since 1923, has resigned from the party, owing to his disapproval of the official attitude of the Opposition toward the Government's policy in China It is believed that he will at once apply for the Chiltern Hundreds

HOUSE OF LORDS

WEDNESDAY, FEB 23RD

LEAD POISONING—SIR T LEGGE'S RESIGNATION

Lord ARNOLD called attention to the resignation of Sir Thomas Legge from the position of senior Medical Inspector of Factories and to the Draft Regulations made under the Lead Paint (Protection Against Poisoning) Act, and moved for papers There was no doubt that the use of lead paint had been the cause of serious injury to the health of many workers For some years there had been several hundreds of cases of plumbism annually, and probably about 40 deaths per annum occurred owing to lead poisoning The consequences of this disease, which were always bad, were sometimes extremely grave, because even when not fatal some of the cases led to paralysis and some to blindness It was with a view to stopping the suffering caused by this terrible disease that under the auspices of the International Labour Office of the League of Nations a Draft Convention was agreed to at Geneva in 1921 by the representatives of 30 countries, including Great Britain, and under that Convention the use of lead paint for interior work was to be prohibited after 1927 It was, to use no stronger language, extremely regrettable that the Conservative Party in the Act passed last year went back on this Convention and instead of prohibiting the use of lead paint for interior work merely enacted that its use should be regulated. The Act, when passing through Parliament, was strongly opposed by the Opposition on the ground that the Bill was a breach of what was agreed to by this country at Geneva in 1921 That accusation had been enormously strengthened owing to the resignation of Sir Thomas Legge, who had resigned his position under the Home Office solely on account of the action of His Majesty's Government in this matter Sir Thomas Legge, as one of the delegates of the British Government at Geneva in 1921, voted there for the Draft Convention, and he was not willing to be a party to going back on what he then did

Their lordships would be aware that it was a very unusual circumstance for a civil servant to resign on a point of disagreement with the Government, and the fact that Sir Thomas Legge had felt it his duty to do so emphasised in the strongest possible way the Government's breach of honour in this matter Sir Thomas Legge, as a civil servant, could, of course, have claimed that the responsibility was that of the Government, but so keenly did he feel that what had been done was wrong and that it would mean suffering and death which would otherwise be avoided to many men that he was not willing any longer to remain in the service of the Home Office Nothing whatever had happened since 1921 to warrant the Government going back upon the decision then taken, and the position was rendered all the worse because the proposal at Geneva which led to the Draft Convention being unanimously agreed to was actually made by Great Britain It was the white lead manufacturers of this country which formed the vested interest which caused the Conservative Government to break faith and to pass the measure of last year Sir Montague Barton knew that the Convention was not wholly acceptable to the white paint manufacturers when he voted for the Convention at Geneva The harm done by lead paint in interior work mainly arose from rubbing down the old paint in order to prepare the surface for the new paint In this process particles of dust were spread about and got into the worker's system, chiefly through the lungs, and caused poisoning The same thing did not occur to anything like the same extent in external painting, because in that work very much less rubbing down had to be done, and the work being done in the open air the particles of dust were blown away Waterproof sandpaper was supposed to meet the difficulty but in practice the case for waterproof sandpaper broke down So many things had to be done in connexion with its use that in practice they would hardly ever be done Moreover, the sale of waterproof sandpaper among house painters had so far made very little progress The vital point in all this matter, and one which hitherto the Government had entirely failed to apprehend, was the injurious effect of the vesicular fluid containing spermatozoa Further, violent withdrawal is often *painful* to the woman and might even favour prolapse Above all, with its serious consequences, there is the *curtailment of the act* and sudden break in the psychic chain for the female partner, which leaves every part in a state of unresolved, tense excitement

3 (*b*) The *condom* is, I agree, convenient, fairly safe, and available under most conditions—even by the most ignorant—but it has many objections not mentioned by Dr Giles It is, if really reliable, very *expensive*. Even the best makes get torn under the common difficulties of some sexual relationships Unless previously lubricated, rubber is very apt to obstruct penetration; this causes some pain and difficulty Artificial lubrication, which is seldom necessary under normal conditions of free secretion, is æsthetically objectionable, and the same may be said of putting on a sheath just before coitus (obviously erection is necessary). At any other great emotional moment, such an irrelevant interruption would be devastating Moreover, the wide use and recommendation of this method may over-popularise the condom to the detriment of morals, since it is the only one available for promiscuous and unpremeditated intercourse which dispels the two chief inhibitory fears of disease and conception

4 *Rubber Check Pessaries in Vagina* —This method, in my experience, is free from nearly all the objections in connexion with other methods and equally, if not more, certain in action. Above all, the pessary can be *fitted, unobtrusively, long before the act and forgotten*, so that the natural spontaneity and "romance" (for want of a better word) of the act is in no way interfered with The complicated psychic processes can run their course smoothly and harmlessly. No method is as yet ideal, and I will concede the *difficulty of fitting* for an ignorant or dirty mother But even this is exaggerated and most women can be instructed in this as they can be instructed to clean their teeth or do their hair. The dangers of sepsis and improper application are those inseparable from all misuse and dirty habits. The pessaries are *inexpensive* and last a long time with ordinary care Safety, *almost* amounting to certainty, can be guaranteed if they are used in conjunction with quinine pessaries

5 (*a*) *Soluble Quinine Pessaries* —The apparent excellence of these is qualified by two or three objections they are *expensive* and just as great—in fact a greater—"source of revenue to those who sell them," as Dr Giles would have us believe about check pessaries They always make *greasy stains* on bedding or clothes; then the smell of cocoa-butter is distasteful to many, and the part played by the olfactory sense in sex is too often ignored; they entail objectionable fumbling just before coitus Further, they are by no means certain in action if used alone, since some of the spermatozoa may be injected straight on to the os externum, while the melted quinine-butter will lie in the fornices out of the way. The power of traces of quinine (manufacturers are naturally sparing with an expensive drug) to penetrate a mucous mass is doubtful

5 (*b*) *Douching* is to be *condemned* not only on account of the liability to the production of chill and shock. For the ordinary self-administered douche seldom reaches the fornices, and the effect of washing out the natural flora and bactericidal secretions of the vagina can be nothing but harmful The syringe itself is clumsy, awkward to pack, and difficult to keep clean

From the "romantic" point of view, again, this method is ruinous, both to the husband conscious of the sordid performance going on nearby and to the wife, cold and disturbed, in an anti-climax of feeling The natural sleep and sense of comfort which should follow complete coitus is rudely interrupted The sublime too often descends to the ridiculous through neglect of detail

I am, Sir, yours faithfully,
HUGH A FAWCETT, M R C.S , D P H Lond.
Penn, Wolverhampton

THE ÆTIOLOGY OF CARDIOSPASM.

To the Editor of THE LANCET.

SIR,—Mr John Morley in his instructive paper on cardiospasm in THE LANCET of Feb. 26th justly implies that the generally accepted explanation of the ætiology of cardiospasm—viz, an incoordination of the neuromuscular mechanism of deglutition—is no explanation at all.

It is commonplace knowledge that the anal sphincter can be demonstrated in full and sustained contracture when the neighbouring mucosa is the seat of a fissure It seems to me to be probable that the physiological sphincter of the cardia may also be thrown into a state of irritation when its overlying mucosa is abraded, or, what is more probable, when the neighbouring mucous membrane is the seat of a (small) chronic ulcer This simile is heightened by the fact that excellent results are obtained by digital dilatation of the respective sphincters in each of these conditions

To substantiate this claim in the case of cardiospasm, we have only to refer to Mr. Walton's paper in the *British Journal of Surgery* of April, 1925

I am, Sir, yours faithfully,
Birmingham, Feb. 25th, 1927. HAMILTON BAILEY.

OPHTHALMIC BENEFIT.

To the Editor of THE LANCET

SIR,—I venture to say that few medical men, and still fewer ophthalmic surgeons will have read the extraordinary letter from Mr Adrian Caddy which was published in your last week's issue without considerable astonishment One finds in it a lofty detachment from the affairs of his brother practitioners, but one looks in vain for any sign of *esprit de corps* or for a scrap of evidence in support of his assertions. He "gathers" this, he "would go so far as to say" *that this is* "*probably*" so, *and that* "might be the case"

These are mere words for words' sake, they provide no material for thought Mr Caddy asserts that the vast majority of eye cases require glasses only There may be two opinions about that, but perhaps Mr Caddy will agree if I suggest that all eye cases who go to sight-testing opticians will be sold a pair of glasses, whether they are in that vast majority or in the minority who do not require glasses

What grounds has Mr Caddy for stating that opticians in 80 per cent of cases prescribe correct glasses? Has he spent a week or two in an optician's shop, checking the optician's treatment by personal examination of his clients? If he has not, then I think it is fair to state that his figures are pure assumption and therefore valueless

Mr Caddy is at pains to explain that he thinks that little *real damage* can be done to the eyes by unrestricted prescribing by opticians No ophthalmic surgeon believes that any actual damage can be *done* to the eyes in this way If he ever says so, it will only be in warning patients against *sight-testing* opticians, and it then becomes simply a justifiable hyperbole Mr Caddy cannot be ignorant of the reason why we warn our patients against sight-testing opticians Leaving aside *real damage* to the eyes, there is such a thing as morbidity such a thing as interference with the exercise of the functions of the eyes May I illustrate what I mean, just before reading Mr Caddy's letter *I saw a tailor* who had compound hypermetropic astigmatism The glasses he required were as *follows* —

Rt +0 5 sph +3 5 cyl 70°; Lt +0 5 sph +3 0 cyl 110°

For 18 months he had been wearing lenses suitable for the correction of compound myopic astigmatism, sold to him by a sight-testing optician That man would have been saved months of pain and discomfort, and would have been more efficient and have earned a good deal more money at his trade dangerous, and that unfortunate idea of detention had far too long run throughout the whole system. There was a popular misconception, which existed very largely to-day, that the majority of lunatics were violent and dangerous, that they had homicidal or suicidal tendencies, and that if they were left at large they would immediately run amok. That was singularly untrue to-day. It was absolutely necessary if they were to deal with this serious question in the light of modern medical knowledge and treatment that they should get out of their minds the idea that lunatics as a class were violent and dangerous people for whom the primary treatment was detention. They should be treated for their mental ailment on medical lines exactly as other people were treated for their bodily ailments. There was the important difference, of course, that those of sound mind were able to coöperate as a general rule with those who were trying to benefit them, but even that was not always true in cases of delirium. The difficulty in regard to persons of unsound mind was that the vast majority were satisfied that they required no treatment at all and that any attempt to treat them or confine them was an outrage. It was very important that they should not only remove from the minds of the public the impression of which he had spoken, but also that they should remove this other impression from the minds of the patients and in the modern method of treatment he thought a good deal had been accomplished in that direction.

It was about 25 years since he was actively occupied in inspecting asylums and since that time there had been a most marvellous development. The old apparatus of locks, bars, and prison-like surroundings had very largely gone and the amount of freedom which existed in the modern asylum would have been unthinkable a quarter of a century ago. There was one institution—true, it was a private institution, and not rate-aided—where something like 40 *per cent*—*certain 30 per cent*—of the patients were allowed to leave the institution on parole and go freely into the town, deal with the shops and associate with the townspeople. It was true of a great many institutions that certainly less than 50 per cent. of the patients were kept actually under lock and key. An important class of mental patients which had helped to raise misapprehension in the public mind were the paranoiacs, persons with a fixed delusion from which they could not escape. In all other respects such people might be sane, logical, and reasonable human beings. Here came in a very difficult question—namely, the definition of insanity. He would not attempt himself, and he thought that none of those who sat on the Commission, in spite of the assistance medical and other which was given them, would feel competent to write a treatise on the definition of insanity. The standard that the law laid down, however, was a more possible one to arrive at. The legal standard was one of conduct. Suppose a paranoiac had a delusion that the earth was flat and nothing could cure him from that delusion, that delusion was perfectly harmless, and there was no reason why he should be confined. Another delusion, by no means infrequent in women, was that some distinguished public man was their lover or their husband and that they were being forcibly and wrongfully kept away from him by the intrigues of other people. So long as that delusion did not lead to any action it was not for the law to interfere, not even though perhaps the victim was pursued with letters. But if it led to the action of camping on his doorstep, ringing his front door bell, hampering him in his public work, then the interests of the sane had to prevail and it became necessary that the person should be in some way restrained. It was because of this class of paranoiacs that the cry was sometimes raised that lunatics were wrongfully detained. No person seeing lunatics of this class detained in an asylum would be able to ascertain that they were in any way affected. They would think, and possibly in some cases they would report, that a perfectly sane man was being wrongfully detained. The Royal Commission made the most special inquiries into all allegations of wrongful detention and they were not able to trace in the whole of the asylums of this country a single case in which they could say that a man was wrongfully detained. That was stated in the Report, and it ought to reassure the public, but he was afraid that the kind of public that raised these allegations against the treatment of lunatics and the conduct of asylums was sometimes not susceptible to the argument of facts.

There was also the question of wrongful certification, a process which had attracted great attention. Certification was hedged round with precautions that ought to operate successfully, and again he was glad to say that they did not come across any case in which they could say that a man had been wrongfully certified. It would not be honest to say that there were not cases in which a business which ought to be regarded as a very serious and responsible one was sometimes a little too much of a routine, but there was no case of wrongful certification. There were a great many cases in which there was no sort of doubt about certification in view of the doctor's report. But there always must be border-line cases where the conduct had been abnormal, and where on the doctor's advice the certifying magistrate must be told that it was likely that the conduct would remain abnormal or become more abnormal. On the contrary, the conduct of the patient might become better and it might be said that the patient had been certified unnecessarily. There was a curious thing about certification, and about the early stages of this disease, that as a general rule the most violent, the most obstreperous and most obviously lunatic of the persons to be certified were generally the persons soonest to be cured and discharged. These were the people of whom doctors had hope. The well-behaved lunatic with one obsession was a man in whose case hope was generally absent, and in such instances the fixed delusion was almost always associated with an idea of persecution. In such a case, the idea of persecution grew until the patient developed a desire not merely to break plate-glass windows, but a homicidal tendency towards the person he believed to be his persecutor, and it therefore became impossible ever to let him loose on society. In view of the large number of patients whom it was possible to discharge within a few weeks, and very often within a few days of certification, the Commission were moved to consider whether some provisional treatment could not be found by which these cases could be dealt with without actual certification. Besides the stigma attaching to a person who has been certified as a madman, there was also the stigma of the Poor-law. As the law now stood, practically every person who was dealt with in a rate-aided institution—and that comprised almost the entire body of certified lunatics in the country—was technically a pauper lunatic. In most cases also certification proceeded through the workhouse, or if not through the workhouse, at least in connexion with the relieving officer, who was a Poor-law official. Their lordships would see the difficulties that had to be faced in connexion with provisional treatment. If there was to be an incomplete and provisional stage, was it to be on the doctor's certificate alone, or, as in the present case, on a doctor's certificate backed up by the order of the justices? The power of restraint was absolutely necessary, but a considerable portion of the recommendations of the Commission was devoted to a system of provisional treatment and a sort of quasi-certification, which would not be called certification, extending say for six months. All the evidence showed that the majority of those certified would be discharged before the expiration of the period, and would be able to say that they had never been certified lunatics. That was a matter to which the Commission attached a good deal of importance.

There was also the very important question of classification at the early stages. It was obviously desirable that earlier classification of persons suffering from mental disorder should take place. But this was, to a large extent, a question of the amount of money they were going to spend. Closer classification meant more medical officers, more attendants, smaller wards, and in many cases new buildings. All that the Commission had been able to do was to lay the considerations before Parliament in their report, and to point out that the adoption of those recommendations would give a return, not only in actual dividends of the smaller number of lunatics to be maintained at the public expense, but in the quicker return to health of the citizens of the country. He thought that it was undoubtedly the case that in most of the rate-aided asylums at this moment it would be better to have a definite increase in the number of medical officers and a definite increase in the number of attendants. Wards were too large and individual attention was too difficult. But here he did not wish their lordships to be misled. If they took the average asylum, say for 1000 cases, unfortunately there was a very large percentage of that population for which medical treatment was no use. There was the hopeless cases, the advanced cases of general paralysis of the insane, the ordinary senile dements, and so on. That class did not want an increase in medical attendants. There were other classes in perfectly good physical health, such as paranoiacs, in which after a certain stage they ceased to have very much hope. But at the same time constant watchfulness and care and constant individual observation of those who they had any hope of preparing for discharge was the best and only way of getting maximum discharges from asylums. It was very early brought home to the Commission that the chief pride of the superintendent of an asylum was not the number of inmates that he managed to keep, but the number that he managed to set free; that was what every doctor aimed at. The advances which had been made in the last 25 years had not been due to the Legislature or even to the excellent work of the county councils who controlled these institutions, but primarily to the initiative of the medical men themselves who were constantly seeking to deal as best they could with these unfortunate cases. There was no drug that would cure it, nor any specific treatment; they could only put the patient in the best position to fight the disease himself. He put this point to one of the most distinguished doctors who came before the Commission, and he admitted that that was practically the position.

action of Great Britain on future international meetings at Geneva for the purpose of raising labour conditions Great Britain who had been in the forefront of civilised countries in efforts for raising those conditions, bid fair to lose her influence abroad in these matters and to become an obstacle instead of a help to progress The Home Secretary had used words in the House of Commons in connexion with this matter which he (Lord Arnold) thought ought not to have been used, because they gave a wrong impression He began by saying that Sir Thomas Legge, having reached the pensionable age, asked to be allowed to retire As a matter of fact, the pension age had nothing to do with the matter Even if Sir Thomas had reached the retiring age—which he had not—there was no reason to suppose in view of his experience that his term of service would not have been somewhat extended, indeed, the Home Secretary when pressed admitted that that was so The Home Secretary also said that Sir Thomas Legge gave as the reason for his resignation the fact that he did not wish to be concerned in the administration of the Lead Paint Act That statement was not really in accordance with what occurred The main reason Sir Thomas gave was that he could not recede from the position he had taken up at Geneva In the letter which was sent out by the Home Office dated Dec 31st, 1926, explanatory of the Draft Regulations under the Lead Paint Act it was stated that the terms of the Regulations had been discussed at a series of conferences between the Home Office and various bodies, including among others the National Operative Painters' Society, and that complete agreement was arrived at That statement was grossly misleading The fact was that the Regulations referred to were nearly all drafted to apply to external painting and were drafted as long ago as 1922 They were agreed to then by the various bodies named in the letter when it was understood that the Geneva Convention was going to be ratified and that so far as interior work was concerned the use of lead paint would be prohibited The Act did not receive the Royal Assent until Dec 15th, and this circular was sent out on Dec 31st No conferences were held between those two dates so far as he knew In the second place the Home Office letter did not in the least make it plain that the Regulations were nearly all drafted for external painting Certain additional Regulations were issued about which, as far as he knew, there had never been any discussion or conference The National Operative Painters' Society had made various objections to the Regulations and had pressed for various amendments The Regulations would be of very little use in stopping lead poisoning In France lead paint was hardly used at all now, zinc paints were used instead Zinc could be used for interior work because that work was not affected by climate There was no reason to suppose that other substitutes as well as zinc could not be found for lead paint—substitutes not harmful to health He urged most strongly that the Government should make it clear that they would before long introduce legislation prohibiting the use of lead paint for interior work If things could work out in that way then the resignation of Sir Thomas Legge, though the sacrifice had been great, would not have been in vain

Viscount **Burnham** said he much regretted that Lord Arnold had thought fit to make a speech of such vitriolic violence on one of the most vexed and difficult problems of industrial policy in international affairs The only reason why he (Lord Burnham) interposed in the debate was, because he presided over the International Labour Conference of 1921 at Geneva, and as chairman of the drafting committee he was, to some extent, responsible for the Draft Convention on Lead Paint Personally he regretted that His Majesty's Government had not been able to recommend Parliament to ratify that convention On the other hand listening to the somewhat uninformed arguments that had been addressed to the House their lordships might be led to imagine that this was a question of breach of faith without regard to the health and welfare of the workers in the trade which used white lead in interior painting or to the general opinion of the civilised world The facts were very different The Conference sat for some six weeks in 1921, and of all the questions submitted to it there was none which provoked so much controversy as the use of white lead in painting It was not, as Lord Arnold led their lordships to believe, a matter of humanity against callousness in regard to human health and welfare, on the contrary, it was a great struggle of trade interests in which the arguments were very powerful on both sides, and as the result of which a compromise was adopted entirely owing to the persuasiveness and the ability of Sir Thomas Legge It was a fight between the lead-producing and lead-using countries, and the zinc-producing and zinc-using countries The Commonwealth of Australia, for instance, was unanimously against any such Convention Germany ranged itself on the same side as Australia, while France and Belgium being zinc-producing and zinc-using countries saw an advantage, not only from the hygienic but also from the commercial point of view in the adoption of such a Convention Three committees were appointed to consider the matter—a commercial, a scientific, and a hygienic committee They had experts of the greatest authority sitting on them He recollected that there was one who was paid £5,000 for coming to Geneva, but he was not paid in the least from any reason of public health, but because the vital interests of a great many countries, which were members of the League of Nations, were concerned, and especially those of Australia where lead constituted one-third of the whole mineral production It was almost certain, at last, that no agreement could be reached, and he broke all the rules of procedure in order to allow Sir Thomas Legge to move, almost as a desperate hope, the resolution that was finally embodied in the Draft Convention which had never been brought to the notice of Parliament On the other hand, many of those who favoured the Convention believe that half measures, though not wholly effective, might do a great deal to stop the evil of which complaint was made In 1921 the number of deaths arising from lead poisoning in the whole of the countries represented amounted to 400—a very serious, but not an enormous figure They thought therefore that it was possible that in six years such scientific discoveries and such applications of those discoveries might be made as would not put this country and other countries using lead at a disadvantage compared with the zinc countries The building trades were altogether opposed to any such Draft Convention It was only when a Draft Convention had been ratified by a national parliament of any country that was a party to the League of Nations, that it became a matter of honourable obligation There was therefore no question of dishonour in the decision of the Government not to ratify the Convention In any case, to make partizan capital out of the resignation of Sir Thomas Legge was a very monstrous abuse Nobody who knew him and had seen anything of his work, over a long period of years, could feel anything but the highest respect for him, and no doubt he was heart and soul in favour of this Convention It was his work, to a large extent. Had he (Lord Burnham) had any say in the matter, either at Geneva or at home, he would have been in favour of ratifying the Convention On the other hand if it was only postponed for a little time for further experiment and for the concurrence and co-operation of the other nations which were involved, he could not think that much harm had been done

Viscount **Haldane** said that he thought that the attitude of His Majesty's Government towards this question was a most dubious one, and that Lord Arnold had been well advised in bringing it before their lordships that day

Lord **Desborough**, replying on behalf of the Government to Lord Arnold's motion, said he would like to join with those who had already spoken in expressing the appreciation of the Home Office, of employers of labour, and of employees, of the inestimable services rendered by Sir Thomas Legge over a very long period The Home Office heard with very great regret that he considered it necessary to resign on account of a difference of opinion as to the proper method of dealing with this very important question of lead poisoning There was no doubt that he and the Government had a very serious difference on that point, but his resignation in any case could not have been very long postponed It was none the less to be regretted, for if all distinguished civil servants thought it necessary to resign because they happened to disagree with the head of a Department or the head of the Government the civil service on which the good government of this country so largely depended would soon find itself in the slough of despond In these conventions nothing whatever was signed by the delegates, therefore, there was no question of going back on any point of honour They had not got to the point when they were governed by Geneva or even by Moscow The Government, since the passing of the Act of last year had had a great many conferences with all those interested in order to draw up the best possible regulations They were very carefully going into the question of the protection of people who used lead paint by, for instance, prohibiting the use of any lead paint in the form of spray and by prohibiting dry rubbing down and scraping Those Regulations were in hand and he thought they would be shortly issued He hoped that those who wished to put a stop to this admitted evil of lead poisoning would give every assistance to the Government in order that the greatest security might be given to those who engaged in this admittedly dangerous occupation

Lord **Arnold**, who said that no attempt had been made to reply to the contentions he had advanced, withdrew his motion

THURSDAY, FEB 24TH

LUNACY AND MENTAL DISORDER

Earl **Russell** called attention to the report of the Royal Commission on Lunacy and Mental Disorder and asked whether it was proposed to introduce legislation on the subject The primary consideration of the public in the treatment of those who had diseased minds was not cure but detention, the protection of society from people who were dangerous and that unfortunate idea of detention had far too long run throughout the whole system. There was a popular misconception, which existed very largely to-day, that the majority of lunatics were violent and dangerous that they had homicidal or suicidal tendencies, and that if they were left at large they would immediately run amok. That was singularly untrue to-day. It was absolutely necessary if they were to deal with this serious question in the light of modern medical knowledge and treatment that they should get out of their minds the idea that lunatics as a class were violent and dangerous people for whom the primary treatment was detention They should be treated for their mental ailment on medical lines exactly as other people were treated for their bodily ailments. There was the important difference of course, that those of sound mind were able to coöperate as a general rule with those who were trying to benefit them: but even that was not always true in cases of delirium The difficulty in regard to persons of unsound mind was that the vast majority were satisfied that they required no treatment at all and that any attempt to treat them or confine them was an outrage. It was very important that they should not only remove from the minds of the public the impression of which he had spoken, but also that they should remove this other impression from the minds of the patients and in the modern method of treatment he thought a good deal had been accomplished in that direction.

It was about 25 years since he was actively occupied in inspecting asylums and since that time there had been a most marvellous development. The old apparatus of locks, bars, and prison-like surroundings had very largely gone and the amount of freedom which existed in the modern asylum would have been unthinkable a quarter of a century ago There was one institution—true, it was a private institution and not rate-aided—where something like 40 per cent.—certain 30 per cent.—of the patients were allowed to leave the institution on parole and go freely into the town deal with the shops and associate with the townspeople. It was true of a great many institutions that certainly less than 50 per cent. of the patients were kept actually under lock and key. An important class of mental patients which had helped to raise misapprehension in the public mind were the paranoiacs persons with a fixed delusion from which they could not escape. In all other respects such people might be sane, logical and reasonable human beings. Here came in a very difficult question—namely the definition of insanity He would not attempt himself and he thought that none of those who sat on the Commission, in spite of the assistance medical and other which was given them would feel competent to write a treatise on the definition of insanity. The standard that the law laid down however was a more possible one to arrive at. The legal standard was one of conduct. Suppose a paranoiac had a delusion that the earth was flat and nothing could cure him from that delusion, that delusion was perfectly harmless and there was no reason why he should be confined. Another delusion by no means infrequent in women, was that some distinguished public man was their lover or their husband and that they were being forcibly and wrongfully kept away from him by the intrigues of other people. So long as that delusion did not lead to any action it was not for the law to interfere, not even though perhaps the victim was pursued with letters. But if it led to the action of camping on his doorstep, ringing his front door bell hampering him in his public work, then the interests of the sane had to prevail and it became necessary that the person should be in some way restrained. It was because of this class of paranoiacs that the cry was sometimes raised that lunatics were wrongfully detained. No person seeing lunatics of this class detained in an asylum would be able to ascertain that they were in any way affected. They would think, and possibly in some cases they would report that a perfectly sane man was being wrongfully detained. The Royal Commission made the most special inquiries into all allegations of wrongful detention and they were not able to trace in the whole of the asylums of this country a single case in which they could say that a man was wrongfully detained. That was stated in the Report, and it ought to reassure the public but he was afraid that the kind of public that raised these allegations against the treatment of lunatics and the conduct of asylums was sometimes not susceptible to the argument of facts

There was also the question of wrongful certification a process which had attracted great attention. Certification was hedged round with precautions that ought to operate successfully and again he was glad to say that they did not come across any case in which they could say that a man had been wrongfully certified. It would not be honest to say that there were not cases in which a business which ought to be regarded as a very serious and responsible one was sometimes a little too much of a routine; but there was no case of wrongful certification. There were a great many cases in which there was no sort of doubt about certification in view of the doctor's report. But there always must be border-line cases where the conduct had been abnormal, and where on the doctor's advice the certifying magistrate must be told that it was likely that the conduct would remain abnormal or become more abnormal. On the contrary, the conduct of the patient might become better and it might be said that the patient had been certified unnecessarily. There was a curious thing about certification and about the early stages of this disease that as a general rule the most violent, the most obstreperous and most obviously lunatic of the persons to be certified were generally the persons soonest to be cured and discharged. These were the people of whom doctors had hope. The well-behaved lunatic with one obsession was a man in whose case hope was generally absent and in such instances the fixed delusion was almost always associated with an idea of persecution. In such a case, the idea of persecution grew until the patient developed a desire not merely to break plate-glass windows but a homicidal tendency towards the person he believed to be his persecutor and it therefore became impossible ever to let him loose on society In view of the large number of patients whom it was possible to discharge within a few weeks, and very often within a few days of certification the Commission were moved to consider whether some provisional treatment could not be found by which these cases could be dealt with without actual certification. Besides the stigma attaching to a person who has been certified as a madman, there was also the stigma of the Poor-law. As the law now stood practically every person who was dealt with in a rate-aided institution—and that comprised almost the entire body of certified lunatics in the country—was technically a pauper lunatic. In most cases also certification proceeded through the workhouse, or if not through the workhouse, at least in connection with the relieving officer, who was a Poor-law official. Their lordships would see the difficulties that had to be faced in connection with provisional treatment. If there was to be an incomplete and provisional stage was it to be on the doctor's certificate alone, or, as in the present case, on a doctor's certificate backed up by the order of the justices? The power of restraint was absolutely necessary, but a considerable portion of the recommendations of the Commission was devoted to a system of provisional treatment and a sort of quasi-certification, which would not be called certification extending say for six months. All the evidence showed that the majority of those certified would be discharged before the expiration of the period, and would be able to say that they had never been certified lunatics. That was a matter to which the Commission attached a good deal of importance.

There was also the very important question of classification at the early stages. It was obviously desirable that earlier classification of persons suffering from mental disorder should take place. But this was to a large extent, a question of the amount of money they were going to spend. Closer classification meant more medical officers, more attendants, smaller wards, and in many cases new buildings. All that the Commission had been able to do was to lay the considerations before Parliament in their report and to point out that the adoption of those recommendations would give a return, not only in actual dividends of the smaller number of lunatics to be maintained at the public expense, but in the quicker return to health of the citizens of the country. He thought that it was undoubtedly the case that in most of the rate-aided asylums at this moment it would be better to have a definite increase in the number of medical officers and a definite increase in the number of attendants. Wards were too large and individual attention was too difficult. But here he did not wish their lordships to be misled If they took the average asylum, say for 1000 cases, unfortunately there was a very large percentage of that population for which medical treatment was no use. There was the hopeless cases the advanced cases of general paralysis of the insane, the ordinary senile dements and so on. That class did not want an increase in medical attendants. There were other classes in perfectly good physical health such as paranoiacs, in which after a certain stage they ceased to have very much hope. But at the same time constant watchfulness and care and constant individual observation of those who they had any hope of preparing for discharge was the best and only way of getting maximum discharges from asylums. It was very early brought home to the Commission that the chief pride of the superintendent of an asylum was not the number of inmates that he managed to keep but the number that he managed to set free: that was what every doctor aimed at. The advances which had been made in the last 25 years had not been due to the Legislature, or even to the excellent work of the county councils who controlled these institutions but primarily to the initiative of the medical men themselves, who were constantly seeking to deal as best they could with these unfortunate cases. There was no drug that would cure it, nor any specific treatment; they could only put the patient in the best position to fight the disease himself. He put this point to one of the most distinguished doctors who came before the Commission, and he admitted that that was practically the position.

The Commission believed that the adoption of their recommendations might do a great deal to lessen the asylum population, because there were certain classes that could be cared for with less expensive treatment and less medical supervision and under such a system they thought there would be quicker discharges and also it might be possible to arrange to relieve asylums of the numerous cases where the patient could live outside the asylum with some friend or relative

He hoped that the Ministry of Health would consider the extent to which in any provisional treatment it was necessary to invoke the justices The justice was invoked because he was the representative of the public, and in consequence of the old and utterly fallacious idea that the doctor as an enemy of the human race was trying wrongfully to put an innocent man in prison But what could the poor justice do? He could only satisfy himself so far as he could by conversation with the doctor In some cases by actually seeing the man he could satisfy himself that it was an obvious case He did not deny that it was a safeguard, but one which in fact was not required, at any rate, in 99 cases out of 100 Whether it was necessary to keep the justice for the hundredth case, even in provisional treatment, he did not know, but he would suggest that an infinitely better safeguard than the intervention of any justice existed at the present time—namely, that the reception in an asylum of any certified lunatic had to be reported at once to the Board of Control, who had all the papers connected with the matter Another point to which he would call their lordships attention was the present rather curious position of what were called licensed houses, which were generally known as private asylums They were for private patients who could afford to pay as opposed to pauper lunatics, and at present the procedure for certification was rather different, and in some cases they had, perhaps, a little less protection There was a very natural and proper feeling on the part of the public that there was a possibility of danger in a place that was run by a proprietor for his own profit, and it was, of course, perfectly obvious that his duty and his interest might conflict This was a legitimate feeling, but he did not think that it had any foundation in fact But it seemed to him that the way to deal with that fear was not the way in which Parliament dealt with it in 1890 He supposed that the hope of Parliament in 1890 was that this vested interest would be gradually extinguished without compensation, but the results hoped for had not been achieved There were fewer licensed houses now than in 1890, but by no means so many fewer as to suggest that the process of extinction would take place within a reasonable time Parliament, when it legislated next time, must make up its mind whether the licensed house for mental patients was fit to exist or not If it was not fit to exist, Parliament must abolish it If it was fit, he thought that the Report of the Commission suggested that there should be what he called "free trade" in licensed houses, that was to say, subject always to the approval of the Board of Control, it should be possible to set up new licensed houses and the limitation on their creation should be abolished One advantageous effect would be that geographically they would be far better distributed than at present If, on the other hand, they were going to abolish the licensed house, it meant that rich people, when mentally afflicted, were not to be allowed to be treated where they chose They could not force such patients into the rate-aided institutions which accommodated pauper lunatics They would have to build public institutions out of public money which were not really needed Again, was a county council to provide accommodation at varying prices to suit the means of their paying patients? But if the accommodation was standardised it would be very much resented by the class affected

There was also the question of the Board of Control itself At the present time the Board of Control was very much understaffed It was urgent that they should have its members increased and have more people to do inspection work Even if the Government felt unable to do anything else with regard to the Report of the Royal Commission, he thought that they would have helped the matter if they increased the numbers of the Board of Control and by the experience gained help to shape the measure which they would, he hoped, at some time introduce He wished to ask the Government what hope there was of legislation being introduced and at what time? As the big subject of the Poor-law was not to be dealt with this session, was this not a good opportunity, at any rate, to introduce, perhaps, into their lordships' House a Bill dealing with this subject and carrying out such recommendations of the Royal Commission as commended themselves to the Government so that the public might have time to be instructed and to learn? If they were told that no effective legislation could be passed this year, they might, at least, be informed that towards the end of the session there might be presented in that House, if it was only for a first reading, some Bill embodying the conclusions at which the departments had arrived

Lord SANDHURST, speaking as one of the Lord Chancellor's visitors, said that the question of the necessity for early treatment of mental patients was almost a closed book so far as argument was concerned He would like to draw attention to the subject of voluntary boarders in registered hospitals. Something like a third of the patients in some of them were voluntary boarders In the licensed houses there were also a large number of voluntary boarders In Scotland, owing partly to a somewhat different interpretation of the law the number of voluntary boarders was even larger than in England, but a rate-aided patient could not be a voluntary boarder This was a case of one law for the rich and another for the poor and urgently called for reform. The Lord Chancellor attended in 1923 a meeting of the Mental After-Care Association, and at that meeting he foreshadowed the Mental Treatment Bill which was introduced in that year but failed to pass The Mental After-Care Association was one of the most deserving charities in the country, but the sort of care and observation which was very necessary should not be left to any charitable institution These two reforms urgently called for the sympathetic consideration of the Government There was another matter to which he wished to refer—namely the very natural hesitation which the medical profession felt in certifying patients. Recent cases had alarmed them and they felt that even when acting in the best of faith they were not adequately protected against subsequent legislation Cases were found in which it was clear that for the benefit of the patient, as well as of the public, it was desirable that the patient should be placed under supervision, yet it was very difficult to find medical men who were willing to certify The report suggested that the *onus* of proof in regard to good faith and reasonable care should be shifted and that it should be for the complaining patient to show that the medical man was actuated by bad faith and did not use reasonable care That would be a good thing as far as it went, but it was hardly enough to inspire confidence in the medical profession. At the same time he felt there was a great difficulty in going any further

Viscount GAGE, replying on behalf of the Ministry of Health, said he did not think the Ministry would disagree, at least in principle, with the majority of Lord Russell's remarks Although many of the results which the Commission set out to attain were in themselves universally admitted to be desirable, the steps that it would be necessary to take to bring those aims and objects into being might give rise to considerable controversy on grounds quite apart from the purely medical and scientific aspects involved. For instance, the prolonged litigation taking place in the Harnett case showed how far the legal status of the medical profession was involved in the law as it stood at present It also showed with what care it would be necessary to consider alterations of any kind in order to reduce to a minimum the possibility of similar cases arising out of the obscurity of the law The Government felt there was need for the very closest consideration of all the questions affecting this matter in all their aspects, scientific, legal, financial, and administrative, before they decided on their policy or enunciated it They thought that they were entitled to a longer period than had elapsed since the issue of the Commission's Report for the necessary investigations Until the Government's proposals for the reform of the Poor-law were in slightly more crystallised form it would be obviously almost useless to discuss the administrative side of the Commission's Report, which formed a considerable proportion of that report He could assure Lord Russell that the Minister of Health considered that there could be no dispute in regard to several of the principles which he mentioned, as, for instance, the desirability of treating the mentally afflicted at the earliest opportunity after the disability had become manifest, and also the desirability of removing the Poor-law stigma He could assure the noble earl that the Government regarded this report as a most valuable document and that they would not fail to adopt such of its recommendations as it might be found possible to do when the investigations of the Government were completed, and when they were in a better position to consider the relations of the report to their Poor-law reform proposals He would, of course, draw the attention of the Minister of Health to the suggestions which his noble friend had made

HOUSE OF COMMONS.

WEDNESDAY, FEB 23RD

Medical Officers at Naval Recruiting Centres

Sir BERTRAM FALLE asked the First Lord of the Admiralty the cost of maintaining medical officers at naval recruiting centres, and would he consider whether a saving could be effected by arranging for medical officers from naval depôts to visit these centres once or twice weekly for the purpose of medically examining candidates for entry into His Majesty's Navy —Lieut -Colonel HEADLAM replied There is a retired naval medical officer in receipt of a salary of £300 per annum at each of the six provincial headquarter recruiting stations At the London headquarter recruiting station an active service surgeon commander is employed and receives the pay of his rank. The travelling expenses, including subsistence, of medical officers travelling from the home ports twice weekly to Newcastle, Birmingham, Liverpool, Bristol, Manchester, and Southampton would be far greater than the salaries paid Moreover, the attendance of a medical officer only twice a week at a headquarter station would not meet requirements, as intending recruits must be examined when putting in an appearance, and this necessitates the attendance of a medical officer the whole of each working day

Physical and Medical Disability in Naval Recruits

Mr Hore-Belisha asked the First Lord of the Admiralty how many applicants were accepted in the year 1926 for His Majesty's Navy, and how many were rejected on account of some physical or medical disability —Lieut -Colonel Headlam replied The number of applicants accepted in the year 1926 for the Royal Navy was 6625, and for the Royal Marines 1063, a total of 7688 Separate totals of numbers rejected on account of some physical or medical disability cannot be given but the total number of candidates for entry in the Royal Navy and Royal Marines rejected on these accounts was 5427 This number does not include men and boys rejected by recruiters—i e , those not sent forward for final medical examination, of which there is no record

Bacteriological Laboratory in Fiji

Dr Shiels asked the Secretary of State for the Colonies whether he had considered the provision of a bacteriological laboratory and a qualified bacteriologist for the hospital at Suva, Fiji, in view of its importance as a medical centre for a wide tropical area.—Mr Ormsby Gore (Under Secretary for the Colonies) replied These suggestions have not previously been made to me, but I will communicate with the Governor

Accidents in the Air Force

Mr Day asked the Secretary of State for Air the number of Air Force personnel killed and injured in flying accidents since Jan 1st last to the last convenient date, together with the figures for the corresponding period of last year —Sir S Hoare replied The casualties to Royal Air Force personnel during the period Jan 1st to Feb 20th, 1927, were 8 killed and 14 injured , further, one naval officer and one naval rating were killed during this period The figures for the corresponding period of 1926 were 5 killed and 15 injured. I should add that four of the deaths in 1927 were the result of a single accident

THURSDAY, FEB 24TH

D C M S and Treatment of Pensioners

Dr Shiels asked the Minister of Pensions if he was aware that in the Edinburgh area there was an increasing number of cases of disabled ex-Service men who were being refused treatment by the D C M S and were being referred by him to their panel doctors who found them unfit for work and entitled to the National Health Insurance allowances , and would he see that more sympathetic consideration was given to these cases and hospital treatment with allowances given where deterioration had taken place —Major Tryon replied It is the duty of the Deputy Commissioner of Medical Services to prescribe whatever form of treatment he may consider necessary in a particular case, and in a case where no specialist treatment is called for, but attention from the general medical practitioner is all that is required, the pensioner is advised to consult the practitioner whose services are available to him under the Health Insurance Acts I should not be justified in requiring, as the hon Member suggests in the last part of his question, the provision of hospital treatment in all cases of deterioration, regardless of the medical view as to whether such treatment in a hospital were necessary or not With regard to the grant of allowances under Article 6 of the Warrant, I would remind the hon Member that the conditions governing the matter are not identical with those which determine sickness benefits under the National Health Insurance Acts

Medical Examination of Pensioners

Dr Shiels asked the Minister of Pensions if he had issued instructions that when the condition and circumstances of needy pensioners were being revised they were to be called up for medical examination by the Ministry, or was the certificate of a qualified medical practitioner still accepted as valid evidence —Major Tryon replied No general instruction to the effect suggested has been issued A certificate from the pensioner's own doctor is taken as evidence in support of a claim but if, as necessarily happens in some cases this evidence is not sufficient to enable the Ministry to determine the claim, an examination by a medical officer of the Ministry is directed

Street Processions for Hospital Funds

Mr Viant asked the Home Secretary whether he was aware that the West London Amalgamated Hospital Society had for many years organised processions, and collections had been taken en route for the purpose of helping the hospitals of London, and that by this means considerable sums of money had been obtained by a society of voluntary workers , that the society had been notified that in future collections could only be made at stationary points , and whether, in view of the fact that this new regulation would seriously affect the receipts, he would reconsider the matter.—Sir W Joynson-Hicks replied Before 1920 collections accompanying moving processions were entirely prohibited In 1920 the Regulations were amended so as to allow collecting processions in special cases, but experience has shown that these processions are liable to cause so much disturbance and interference with traffic that it was decided to amend the Street Collection Regulations so as to prohibit the practice I am sorry to have to put any obstacle in the way of collections for good objects, but the London traffic problem is now such that other considerations must be subordinated to traffic considerations.

Education Authorities and Mentally Defective Children

Mr Robert Morrison asked the President of the Board of Education how many local education authorities had made complete provision for the number of mentally defective children under their jurisdiction , how many had made partial provision , and how many had not yet made any provision —Lord Eustace Percy replied In the case of about 33 local education authorities the provision for the education in special schools of mentally defective children was fairly complete in 1925, the latest period for which returns are available , partial provision was made by some 175 authorities and 110 authorities had made no provision In addition about 50 authorities including some of those who had made no special school provision, had arranged for the supervision of mentally defective children in their areas

Mr Robert Morrison asked the President of the Board of Education the present estimated number of mentally defective children who might benefit by admission to special schools , how many of these children were at present in special schools , how many were in public elementary schools , how many in other institutions , and how many were not attending any school —Lord Eustace Percy replied . It is not possible to estimate the number of mentally defective children who might benefit by admission to special schools ; but of about 33,000 mentally defective children classed as educable in England and Wales, in 1925, 15,773 were attending special schools, 12,470 were at public elementary schools, 860 were at other institutions and 3872 were not attending any school The accommodation in mentally defective schools on March 31st, 1925, was 16,746 and on March 31st, 1926, 17,154

Poor-law Hospitals and Road Casualties

Mr Day asked the Minister of Health if his attention had been drawn to the increasing practice of admitting road casualties into Poor-law institutions, with the resulting cost of maintenance being thrown upon local funds , and would he consider legislation defining the powers of boards of guardians in respect of the maintenance of patients admitted to such Poor-law institutions after road accidents —Mr Chamberlain replied · I have received certain representations on this matter which are now under consideration

Patients in Mental Hospitals

Mr Day asked the Minister of Health the number of persons in mental hospitals and homes on Jan 1st, 1927 —Mr Chamberlain replied The number of persons certified in England and Wales under the Lunacy Acts resident in county or borough mental hospitals, registered hospitals, licensed houses and in single care on Jan. 1st 1927 was 116,748 There were in addition 796 voluntary boarders The number of mental defectives resident in institution and under guardianship on the same date was 22,759

Serum Treatment of Scarlet Fever

Mr Bennett asked the Minister of Health to what extent the serum treatment of scarlet fever and the Schick test and von Behring's method of immunisation against diphtheria were being used in this country by the various local authorities —Mr Chamberlain replied Exact figures are not available but the methods mentioned by my hon friend are being increasingly used throughout the country and with encouraging results I am advised that the serum treatment of scarlet fever is of value particularly in severe cases of the disease and in the prevention of its complications A fair number of local authorities especially the larger ones, now provide active immunisation against diphtheria for those who wish to avail themselves of it at child-welfare centres in schools in residential institutions, or among the nursing staffs of infectious diseases hospitals

Financial Position of Approved Societies

SIR **ARCHIBALD SINCLAIR** asked the Minister of Health whether he was aware that, owing to the increase in the amount of benefits paid by approved societies to their members during the past year and the decrease in the amount of contributions received from their members on account of the industrial crisis and from the State on account of the operations of Part I of the Economy (Miscellaneous Provisions) Act, a number of these societies, whose position at the beginning of this year proved to be actuarially sound, were now faced with the prospect of falling into deficiency before the end of the current quinquennial period; and what action, if any, the Government proposed to take to strengthen the financial position of these threatened societies —Mr **CHAMBERLAIN** replied · I am aware of the strain imposed upon certain approved societies by causes connected with the industrial crisis of last year I cannot, however, accept the hon Member's suggestion as to the consequences The valuations are separated by a period of five years, and I should not be warranted in drawing conclusions as to the results of the next valuation by reference only to the conditions prevailing over a few months In any case, the National Health Insurance Act enables the Central Fund to come to the aid of societies which have fallen into deficiency through no fault of their own, and I am satisfied that no further action by the Government is required So far as regards the reduction in the State contribution under the Economy (Miscellaneous Provisions) Act, I would refer the hon and gallant Member to Section 3 of that Act wherein very full provision is made for the protection of societies against the contingency to which he refers

Position of Local Health Visitors

Mr **GERALD HURST** asked the Minister of Health whether any association of nurses was consulted before the issue of the regulations of February, 1925, as to the position of health visitors employed by local authorities, if he was aware of the shortage of candidates under such regulations and the difficulties of nurses in complying therewith, and if he had considered the desirability of revising them —Mr **CHAMBERLAIN** replied The answer to the first part of the question is in the affirmative I am aware that there are not yet so many candidates under training for the position of health visitor as is desirable, but my attention has not been called to any particular difficulties in complying with the present regulations It is not proposed at present to revise the regulations which have been in operation only since April, 1925

Mental Deficiency Bill

Sir **JOHN MARRIOTT** asked the Minister of Health whether it was proposed to reintroduce the Mental Deficiency Bill this session and, if so, whether it would be introduced before Easter —Mr **CHAMBERLAIN** replied The Government do not propose to reintroduce the Mental Deficiency Bill But Mr B C Wood has presented a Bill which I understand will incorporate certain of the provisions of the Government Bill of last session

War Pensions Expenditure

Mr **DALTON** asked the Chancellor of the Exchequer the total sum paid in war pensions since the conclusion of the armistice —Mr R **MCNEILL** (Financial Secretary to the Treasury) replied The total sum expended on war pensions (including medical treatment but excluding administration) from the Armistice to March 31st, 1927, is estimated at *£647,000,000*

MONDAY, FEB 28TH

The Hours Convention

The House discussed in Committee the Washington Hours Convention on a vote of £11,653,564 for the Ministry of Labour Mr **HAYDAY** moved a reduction of £100 and called attention to the failure of the Government to ratify the Convention Sir A **STEEL-MAITLAND**, Minister of Labour, in reply, said that the matter was under the consideration of the Cabinet There was a wide variation in the interpretation of the Convention and in the practice of the countries that had ratified it They could not get a convention which would stand the test of practice until they had explored the ground and made it clear that the various countries meant the same thing and were going to carry it out in the same way He was trying to explore the ground and that was the only way they could get on the path of permanent progress

Dr **VERNON DAVIES** said he had a great deal of sympathy with the Minister of Labour, because he had formed the impression that the right hon gentleman was sincerely anxious to do all he possibly could towards ratification of the Convention, but that there were certain difficulties in the way He (Dr Davies) was a convinced believer in the efficiency and necessity for a 48 hours' week The Minister might, he suggested, promise to do all that he could to enter into a provisional ratification and that, if, after a certain time, other nations did *not ratify*, to repeal it The Government Front Bench showed a great lack of industrial psychology and if they would take a course in that, they would probably learn that the very fact of ratifying the agreement would cause such a tremendous feeling of thankfulness and relief among the working people that there would be peace in industry Eventually, the amendment was rejected by 199 votes to 108—majority 91

Indian Medical Service

Mr. **PETHICK-LAWRENCE** asked the Under-Secretary for India whether a decision had now been reached as to granting passage concessions to Indian officers who entered the Indian Medical Service by competitive examination in London —Earl **WINTERTON**, who replied, referred to an answer which he gave to Mr Day on Nov 9th The Secretary for India expected that details of the scheme recently sanctioned would be announced very shortly

TUESDAY, MARCH 1ST.

Vaccination Fees

Mr **GROVES** asked the Minister of Health whether the medical officer of health for Mexborough had performed any vaccinations during the recent small-pox outbreak, and, if so, what fee he had received or would receive for such vaccinations —Mr **CHAMBERLAIN** replied as follows This medical officer of health is also public vaccinator for Mexborough I have no information as to the number of vaccinations he has performed, but in his capacity of public vaccinator his fee for domiciliary vaccination is *6s* per case.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 19TH, 1927

Notifications —The following cases of infectious disease were notified during the week Small-pox 346 (last week 479), scarlet fever, 1320, diphtheria, 955, enteric fever, 24, pneumonia 3523 (last week 3192); puerperal fever, 30, puerperal pyrexia 118, cerebro-spinal fever 15, acute poliomyelitis, 11, acute polio-encephalitis, 2, encephalitis lethargica, 39; dysentery, 10; and ophthalmia neonatorum, 111. No case of cholera plague or typhus fever was notified during the week

The cases of small-pox were distributed among the same English counties as last week, namely Cheshire 1, Derbyshire 6, Durham 217, Lancashire 5, Lincolnshire 1, Northumberland 11, Nottinghamshire 4, and Yorkshire 99 In addition, two cases were notified from Wales (from the counties of Monmouth and Glamorgan), and reference to an editorial article on p 506 will show that the Welsh outbreak has since assumed much larger proportions

Deaths —In the aggregate of great towns, including London, there were 2 (0) deaths from enteric fever 73 (1) from measles, 4 (1) from scarlet fever, 110 (26) from whooping-cough, 29 (7) from diphtheria, 51 (12) from diarrhœa and enteritis under two years, and 987 (128) from influenza The figures in parentheses are those for London itself The influenzal deaths for the last six weeks have thus been 326, 470, 725, 818. 759, and 990, whilst 1023 is the number notified for the week ended Feb 26th The figure for London however, has fallen to 81

ROYAL MEDICAL BENEVOLENT FUND —At the last meeting of the committee 34 cases were considered and £440 was voted to 29 applicants The following is a summary of some of the cases relieved —

Widow, aged 76, of L R C S Edin who died in 1893 Only income old age pension Lives with two sons the younger is unemployed and the elder finds it a hard struggle to keep three persons Voted £26 in 12 monthly instalments

Widow aged 63 of L R C P who died in 1917 Four children two married Eldest daughter, aged 38, is a domestic help, and comes home at night, she is *only* able to give her mother some provisions occasionally Son getting married, applicant asks for help as his money will cease Inclusive rent *7s 8d* a week Voted £18 in 12 monthly instalments

Widow aged 44, of M R C S who died in July last from septicæmia after an operation on a patient Two children boys, the elder, aged 20, earns *£65* per annum, and the younger, aged 8, is applying for an Epsom College Foundation When late husband s estate is settled estimated income will be about £110 per annum Voted *£20*

Subscriptions may be sent to the Treasurer, Sir Charters Symonds at 11, Chandos-street, Cavendish-square, London, W 1

Medical News.

UNIVERSITY OF OXFORD.—At a congregation held on Feb. 19th the following degrees were conferred:—

Doctor of Medicine.—Vincent S. Hodson.

Bachelor of Medicine.—Douglas A. Robertson, Clarence S. Broadbent, and Michael D. Bower.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates were approved in the undermentioned subjects:—

Surgery.—I. G. Briggs, London Hosp.; J. D. Evans, St. Mary's Hosp.; L. J. Lawrie, London Hosp.; A. W. Marsden, Birmingham; J. H. Mulvany, King's College Hosp.; W. D. Neill, London Hosp.; L. W. Rose, Guy's Hosp.; R. S. S. Smith, St. Bart.'s Hosp.; S. le R. Switzer, London Hosp.; and H. N. Walker, St. Bart.'s Hosp.

Medicine.—L. Ashkenza, Middlesex Hosp.; B. Best, Liverpool; I. G. Briggs, London Hosp.; J. De Rosa, Albany and London Hosp.; J. A. Fernandez and S. Jenkinson, St. Bart.'s Hosp.; R. Kahn, London Hosp.; J. H. Mulvany, King's College Hosp.; H. Rundstrom, St. George's Hosp.; and H. N. Walker, St. Bart.'s Hosp.

Forensic Medicine.—V. P. Bamford and I. G. Briggs, London Hosp.; J. De Rosa, Albany and London Hosp.; R. Kahn, London Hosp.; J. H. Mulvany, King's College Hosp.; and S. Wray, Manchester.

Midwifery.—I. G. Briggs, London Hosp.; J. D. Evans, St. Mary's Hosp.; K. E. Gallagher, Manchester; R. Kahn, London Hosp.; J. H. Mulvany, King's College Hosp.; S. Slotar, Guy's Hosp.; H. N. Walker and R. W. Wood, St. Bart.'s Hosp.; and S. Wray, Manchester.

The Diploma of the Society has been granted to the following candidates entitling them to practise medicine, surgery, and midwifery: B. Best, I. G. Briggs, J. H. Mulvany, L. W. Rose, H. Rundstrom, R. S. S. Smith, and S. Wray.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on Feb. 23rd, the Vice-Chancellor, Sir William Beveridge, in the chair, the Cancer Hospital (Free) was admitted as a School of the University for a period of three years.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A course of six Hunterian lectures on the Peoples of the East, Past and Present, is being given by Sir Arthur Keith, F.R.S., at the College. The remaining lectures will be delivered at 5 P.M. to-day, March 4th, and on March 7th, 9th, 11th, and 14th at the same hour.

SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a council meeting of this Society the following resolution has been passed unanimously: "The Society of Members deeply deplores the great loss which it has sustained by the death of Mr. C. Edward Wallis, L.D.S., M.R.C.S. Eng., and desires to place on record its appreciation of his untiring zeal and self-sacrificing service on behalf of the Society and of all the members of the College."

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—A meeting will be held in the lecture theatre of the Society's house, 17, Bloomsbury-square, London, W.C. 1, on Tuesday, March 8th, at 8 P.M., when a lecture will be delivered on the Microscope and its Use in Research, by Mr. J. E. Barnard, F.R.S. Medical friends of members and student-associates will be welcome.

INDUSTRIAL HEALTH EDUCATION SOCIETY.—This organisation, which came into being last year, and has for its purpose the propagation among the British industrial population of information useful for the maintenance of health, held its first annual meeting in the Gould Hall, Edinburgh, yesterday afternoon. Sir William Haldane presided over a representative gathering, and the following appointments were made to the Council:—Chairman, Sir William Haldane (Edinburgh); Vice-Chairman, Dr. Charles Porter (M.O.H. Marylebone, W.); hon. secretary, Dr. G. Clark Trotter, (M.O.H. Islington, N.); hon. treasurers, Messrs. Greenhill and Clapperton (Edinburgh); and general secretary, Mr. J. Mackenzie, 89, Mibrae-road, Glasgow.

INQUESTS IN LONDON.—Last year 6934 deaths were reported to London coroners as against 6758 in 1925, and inquests were held in 5143 cases, in 80 per cent. of which post-mortem examinations were necessary. The total number of suicides was 600, as against 515 in 1925, and in two cases a verdict of felo-de-se was returned. Excessive drinking accounted for 28 deaths, and 18 were described as the result of want and exposure. Those recorded as due to lack of attention at birth increased from 36 to 57. In all 1761 people met their death by accident, as against 1607 in 1925. A verdict of death from natural causes was reported in 2117 cases and there were 10 verdicts of "Causes of death unknown." The total cost to the London County Council of the inquests held in 1926 was £25,732.

FIFTY YEARS A HOSPITAL SURGEON.—Dr. Thomas Porter Greenwood, of Stamford, Lincolnshire, has completed 50 years as honorary surgeon to the Stamford Infirmary.

Dr. K. B. Allan (senior medical officer) has been appointed by the King a Member of the Executive Council of the Gambia and an Official Member of the Legislative Council of that colony.

CHADWICK LECTURE.—On Thursday, March 10th, at 5.15 P.M., at the Barnes Hall of the Royal Society of Medicine, 1, Wimpole-street, London, W., Sir James Crichton-Browne will take the chair at the second of two Chadwick lectures by Dr. Carey F. Coombs, on Rheumatism: its Causes and Prevention. Information may be had from Mrs. Aubrey Richardson, at the offices of the Chadwick Trust, 13, Great George-street, Westminster.

MEMORIAL TO SIR PATRICK MANSON.—As we have already announced, Mr. Neville Chamberlain, Minister of Health, is to unveil a memorial tablet to the late Sir Patrick Manson in the Manson Ward of the Royal Albert Docks Hospital on Tuesday, March 15th, at 3.30 P.M. A train which leaves Fenchurch-street Station at 2.20 and arrives at Connaught-road at 2.41 P.M. will be found convenient.

ST. BARTHOLOMEW'S HOSPITAL: RETIREMENT OF THE MATRON.—At an "At Home" given by Lord Stanmore, the treasurer, last week, presentations were made to Miss McIntosh, the matron, who is retiring after more than 16 years' service. She was presented with an address and a cheque from the governors; the Guild of the hospital and the nurses gave her a diamond ring and other souvenirs.

LONDON FEVER HOSPITAL.—It was stated at the annual meeting last week that there was a large increase in the number of cases of measles in 1926, 208 patients being treated as compared with 39 in 1925. Of the 962 patients treated during the year 203 were suffering from pulmonary or other forms of tuberculosis.

CAMBRIDGE GRADUATES' MEDICAL CLUB.—The annual dinner of this club was held at the Langham Hotel, London, on Tuesday evening last, March 1st, Sir Humphry Rolleston, President of the club, in the chair. The occasion was made highly successful by the after-dinner performances of the St. Thomas's Hospital troupe who sang alone or in combination, played the ukulele, and improvised orations of an amusing character. Other members of the club added to the programme by recitations in metre, descriptive of amazing pathological occurrences.

BIRMINGHAM'S CRIPPLES.—An endeavour is being made to raise £50,000 for the extension of orthopædic work in Birmingham. Some two years ago the Royal Orthopædic Hospital in that city and the Birmingham Cripples' Union were amalgamated, and it is now the third largest curative institution in Birmingham. Yet there are still 500 cripples, more than half of them children, awaiting treatment. It is hoped to transfer all the bed cases to an open-air suburban hospital, which would give 40 more beds, and bring up the total number to 300.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Thursday, March 10th, at 5 P.M., Mr. R. H. Jocelyn Swan will lecture at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, on Suppression and Retention of Urine. On Tuesday, March 8th, at 4.30 P.M., at the St. Mark's Hospital, City-road, Mr. W. B. Gabriel will give a demonstration in clinical surgery. Both lecture and demonstration are open to members of the medical profession without fee. The Brompton Hospital will hold a special week's course in diseases of the chest, starting on Monday, March 7th; there will be morning and afternoon sessions (fee £3 3s.). A special two weeks' course will be given at the Royal National Orthopædic Hospital from March 21st to April 2nd. The course will occupy the whole of each day (fee £2 2s.). From March 14th to 26th the Chelsea Hospital for Women will hold a special course in gynæcology, occupying the mornings and/or afternoons (fee £5 5s.). A late afternoon course in general medicine and surgery, primarily intended for general practitioners, will be held at the London Temperance Hospital from March 21st to April 2nd, lasting an hour and a half daily (fee £1 1s.). The Queen's Hospital for Children, Bethnal Green, will give a course in diseases of children from March 28th to April 9th from 10 A.M. to 4 or 5.30 P.M.; the wards and out-patient departments will be open continuously throughout the course (fee £3 3s.). In the afternoons for two weeks from March 28th, the Royal Eye Hospital will give a series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye (fee £1 1s.). Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Dental Care of Liverpool School-children —The Liverpool Education Committee has decided to appoint two whole-time dental officers for the city at salaries of £500 per annum rising to £600 instead of the present part-time service

Walsall Maternity Home —Hitherto the County Borough of Walsall, with a population of about 100,000, has lacked a maternity home The corporation have now purchased Bloxwich Manor House, which is within the borough, and it is to be adapted for that purpose

Gift to University of Edinburgh —Mr Thomas Cowan, a retired shipowner of Leith, has given £15,000, in addition to £10,000 previously given, to enable the University to provide a residential house for male students Houses will be purchased in George-square and adapted to accommodate about 125 students

Shortage of Radium in Liverpool —At the annual meeting of the Liverpool Hospital for Cancer and Skin Diseases a proposal to provide Liverpool with a supply of radium for cancer treatment at a cost of £30,000 was put forward It was stated that the hospital at present possessed only £1000 worth of radium, indeed, the city had so little radium that patients needing this form of treatment have to be taken to the Christie Hospital in Manchester

Rebuilding Scarborough Hospital — The governors of Scarborough Hospital and Dispensary (50 beds) have abandoned their intention of enlarging the building to provide double the number of beds They find that the present form of the hospital and the present site cannot adequately meet modern needs and have therefore decided to build an entirely new hospital on a fresh site

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W

Thursday, March 10th —4 30 P M, *Papers to be read* A Levin and J Wyman The Viscous Elastic Properties of Muscle (communicated by Prof A V Hill, F R S) Alexander Hynd The Action of Glucosone on Normal Animals (Mice) and its possible Significance in Metabolism (communicated by Sir James Irvine, F R S) F W R Brambell and A S Parkes *Changes in the* Ovary of the Mouse following Exposure to X Rays (communicated by Prof J P Hill F R S) A S Parkes Una Fielding, and F W R Brambell *Ovarian Regeneration in the Mouse, after complete* Double Ovariotomy (communicated by Prof J P Hill, F R S) A Walton The Relation between "Density" of Sperm-Suspension and Fertility as determined by Artificial Insemination of Rabbits (communicated by Dr F H A Marshall, F R S)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W

Tuesday, March 8th —5 P M, Therapeutics and Pharmacology Papers Dr A F Hurst and Dr F A Knott The Treatment of Biliary Infection with Hexamine Dr J W Trevan and Miss H W Bainbridge The Standardisation of Cod-Liver Oil

Thursday —8 P M, Neurology Clinical Meeting at the National Hospital, Queen square, W C

Friday —5 30 P M (Cases at 5 P M) Clinical. Cases Dr A A Osman (1) A Case of Chronic Renal Disease with Bony Changes, (2) A Case for Diagnosis Mr E C Hughes Three Cases of Arthroplasty of the Temporo-Mandibular Joint Dr Burrell (1) Neoplasm of Lung, (2) Pulmonary Tuberculosis Treated with Sanocrysin Mr F D Saner A Case of Gastro-Enterostomy for Discussion Dr C P Symonds Charcot's Arthropathy as Initial Symptom in Syringomyelia Mr Lambrinudi Two Cases of Medelung's Deformity Mr Shorney Webb *Paget's Disease* in a Woman Dr Cassidy A Case of Achalasia Cases will also be shown by Mr Tanner, Dr Worster Drought, and Mr Mortimer Woolf 5 P M Ophthalmology Clinical Meeting at St Bartholomew's Hospital, E C, in the Ophthalmic Out Patient Department

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

ROYAL COLLEGE OF PHYSICIANS, *Pall Mall East*, S W

Tuesday, March 8th —5 P M, Dr F Dearden Health Hazards in the Cotton Industry (Last Milroy Lecture)

Thursday —5 P M, Prof F R Fraser Cardiac Dyspnœa (First Goulstonian Lecture)

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W

Monday, March 7th, to Saturday, March 12th.—Fellowship of Medicine, *special lecture* at the Medical Society, 11, Chandos street, W, at 5 P.M, on Thurs Mr R H *Jocelyn* Swan Suppression and Retention of Urine Open to all members of the medical profession without fee —St Mark's Hospital, City road, E C, special clinical surgery demonstration on Tues, at 4 30 P M, by Mr W B Gabriel Open to all members of the medical profession without fee —Hospital for Consumption and Diseases of the Chest, *Brompton*, S W Special course in Diseases of the Chest, for one week only Demonstrations and lecture demonstrations daily mornings and afternoons —London Lock Hospital, Dean street, W Special course in *Venereal Diseases Clinical* work daily and special lectures —National Hospital, Queen square W C Special course in Neurology, instruction daily in the Out-Patient Department and special lectures and demonstrations Further information from the Secretary

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

Monday, March 7th.—10 A M, Mr MacDonald Genito Urinary Operations 2 P M., Mr Addison Surgical Wards 4 P M, Mr Addison Surgery of the Stomach and Duodenum

Tuesday —10 A M, Medical Registrar Clinical Methods 12 noon *Dr Burrell* Chest Cases 2 P M., Mr Sinclair Surgical Out-Patients

Wednesday —10 A.M, Dr Owen Medical Diseases of Children. 2 P M, Dr Scott Pinchin Medical Out patients *Mr Donald Armour* Surgical Wards

Thursday —10 A M, Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 4 P M, Mr Vlasto Throat, Nose and Ear Department

Friday —11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out-patients

Saturday —9 30 A M, Dr Burnford *Bacterial Therapy* 10 A M, Mr Vlasto Operations on Throat, Nose, and Ear

Daily —10 A M to 5 P M, Operations, Medical, Surgical Special, Out-patient Departments (Saturdays, 10 A M to 1 P M)

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

Monday, March 7th.—10 A M, Surgical Clinic 2 P.M., Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical, and Gynæcological *Clinics* Operations

Tuesday —2 30 P M to 5 P M, Medical, Surgical, Throat, *Nose, and Ear Clinics Operations*

Wednesday —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations

Thursday —11 30 A M, Dental Clinic 2 30 P M to 5 P M., Medical, Surgical, and Ear, Nose, and Throat *Clinics* Operations

Friday —10 30 A.M, Throat, Nose, *and* Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's *Diseases Clinics Operations*

On Monday, March 7th, and Wednesday, March 9th, *at 2 30* P M, there will be special demonstrations of Gynæcological and Eye Cases by Mr Aubrey Goodwin and Mr N B B Fleming respectively On Friday, March 11th, at 4 30 P M, Dr L R Yealland will give a demonstration on Selected Cases of Nerve Diseases.

UNIVERSITY COLLEGE HOSPITAL, Gower street, W C

Friday, March 11th —4 15 P M Dr Charles Singer *The Hygienic Idea in World History*

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, Leicester square, W C

Tuesday, March 8th —5 P M *Dr* J E M Wigley Leukæmia Cutis Mycosis Fungoides

Thursday —5 P M, Dr J E M Wigley Pemphigus and Allied Eruptions

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn road, W C

Friday, March 11th —4 P M, Mr Archer Ryland Demonstration of Museum Specimens

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE

Tuesday, March 8th —3 15 P M, *Dr C* Gouldesborough Practical Points of Interest in X Ray Work

HOSPITAL FOR SICK CHILDREN, Great *Ormond* street, W C

Thursday, March 10th —4 P M, *Dr* E A. *Cockayne* Poliomyelitis and Polio-encephalitis

ST MARGARET'S HOSPITAL FOR WOMEN, *Acomb* street, Whitworth Park, Manchester

Wednesday, March 9th —4 P M, Mr *Nils Stening* Swedish Massage, with demonstrations

MANCHESTER ROYAL INFIRMARY POST GRADUATE *COURSE*

Tuesday, March 8th —4 15 P M, *Mr* G Jefferson The Differential Diagnosis of Spinal Disease

Friday —4 15 P M, Dr J *Wharton* Demonstration of Eye Cases

UNIVERSITY OF LIVERPOOL (Lady Jones Lecture)
THURSDAY, March 10th.—4 P.M (in the Surgical Theatre, Medical School), Prof Vittorio Putti New Conceptions in the Pathogenesis and Treatment of Sciatica

ST MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE
FRIDAY, March 11th—4 30 P.M (at the Whitworth-street West Branch), Dr D Dougal A Demonstration of Antenatal Cases

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY
WEDNESDAY, March 9th—5 30 P.M., Mr J G Turner Some Microscopical Researches in Dental Anatomy and Pathology

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS
FRIDAY, March 11th—3 30 P.M. (at the Royal Hospital), Mr Ferguson Wilson Surgical Cases

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)
MONDAY, March 7th—6 P.M (at the Medical Society of London, 11, Chandos street, W), Prof M S Pembrey Digestive Organs and Lymphatic Glands

CHADWICK TRUST LECTURES
THURSDAY, March 10th—5 15 P.M (in the Barnes Hall of the Royal Society of Medicine), Dr Carey F Coombs Rheumatism: Its Causes and Prevention.

Appointments.

DENNING, G F L R.C.P Lond., M.R C S has been appointed Deputy Medical Officer, County Mental Hospital, Rainhill

HOWELL, B WHITCHURCH, F R C S Eng, Orthopædic Surgeon to the Essex County Council

MITCHELL, H A. M.B Toronto, Pathologist to the Warrington Infirmary and Dispensary

SILVERSTON, J D, M.B, B S Durh, Deputy Medical Officer, Lancaster County Mental Hospital.

Certifying Surgeons under the Factory and Workshops Acts **THOMAS J G** L.R.C P & S G (Denbigh) **TOWNLEY, J S**, M B, Ch B Glasg (Crickhowell Brecon), **Fordyce, W**, M D, Ch M Edin (Mearns Renfrew)

Vacancies.

For further information refer to the advertisement columns

Ashton under-Lyne, District Infirmary—Res Surg O Also H S £200 and £150 respectively
Barnstaple, North Devon Infirmary H S £150
Bath, Royal United Hospital—H P. £120
Belgrave Hospital for Children, 1, Clapham road, S W—H S and Asst H P Each at rate of £100
Bolingbroke Hospital, Wandsworth Common, S W—Hon. Anæsthetist
Bristol, Cossham Memorial Hospital, Kingswood—Res M.O £150
Burnley Union, Primrose Bank Institution—Res M.O £300
Bury Infirmary—Third H S At rate of £150
Coventry, Coventry and Warwickshire Hospital—Res H P £125
Croydon Mental Hospital, Upper Warlingham, Surrey—Sen. and Jun Asst M.O's £650 and £350 respectively
Delhi India, Lady Hardinge Medical College—Professor of Physiology Rs 750 monthly
Dreadnought Hospital, Greenwich,—H.P and H.S's Each at rate of £110
Durham County Hospital—Jun. H S. At rate of £120
Enfield Urban District Council—M O H, &c. £900
Essex, Administrative County of—Asst County M.O H £700
Federated Malay States Central Mental Hospital—Second Asst Med Supt £700
Glasgow University—Muirhead Chair of Obstetrics and Gynæcology
Great Yarmouth County Borough—Asst M O H &c £600
Hospital for Epilepsy and Paralysis, Maida Vale, W—Hon. M.O for X Ray, &c.
Hospital of St John and St Elizabeth, 40, Grove End road, N W—Asst P
Ipswich East Suffolk Administrative County—Asst County M O H, &c £625
King's Lynn, West Norfolk Hospital—Jun. H S £100
Leeds Public Dispensary—Jun Res. M.O £150
Leicestershire County Council—Asst County M.O £750
London Female Lock Hospital 283, Harrow road W—Surg Reg £100
London Hospital E—Two Medical First Assts £300
London Homœopathic Hospital, Great Ormond street, W C—Third Anæsthetist £50
London Jewish Hospital Stepney Green, E—Med Reg and Out patient Asst Also Surg Reg Each £50
London Lock Hospital 91 Dean street, W—Surg Reg £100
Manchester Ancoats Hospital—H S At rate of £100.
Manchester Babies' Hospital Burnage Lane, Levenshulme.—Res M O At rate of £125
Manchester, Baguley Sanatorium—Asst M O £350
Manchester Salford Royal Hospital—Two H S's Each at rate of £125
Middlesex Hospital, Mortimer-street, W—Asst Radiologist £100
National Hospital for Diseases of the Heart, Westmoreland-street W—Res M.O Also Out-patient M.O At rate of £150 and £125 respectively
Newcastle-upon-Tyne, Hospital for Sick Children—Sen and Jun Res. M O's At rate of £120 and £100 respectively
Nottingham City Mental Hospital—Jun Asst M O £350
Oxford Radcliffe Infirmary and County Hospital—H P and Cas H S Each at rate of £120
Plymouth South Devon and East Cornwall Hospital—Res Surg O, H S, H.P. At rate of £100 and £50 respectively Also Cas H S
Prince of Wales's General Hospital Tottenham N—Two H S's and H P At rate of £120 Also Jun. H S and Jun. H P. At rate of £90
Queen's Hospital for Children, Hackney road, Bethnal Green, E—H P At rate of £100
Richmond, Surrey Royal Hospital—Asst H S At rate of £100
Royal Free Hospital, Gray's Inn road, W C (Children's Dept)—First Asst for Infant Welfare, &c
Royal National Orthopædic Hospital, 234, Great Portland-street, W—H S At rate of £150
Royal Waterloo Hospital for Children and Women Waterloo road, S.E—Hon Surg Reg and Hon Orthopædic Surg
St John's Hospital Morden Hill, Lewisham, S E.—Res Cas O At rate of £100
St Mary's Hospital, Institute of Pathology and Research—Research Studentship £200.
St Peter's Hospital for Stone, &c, Henrietta street, Covent-garden, W C—H S At rate of £75
Samaritan Free Hospital for Women, Marylebone-road, N W—H S At rate of £100
Sheffield, Winter-street, Hospital for Tuberculosis—Res M O £350
Southampton Royal South Hants and Southampton Hospital—Jun. H.S At rate of £150
Stockton-on-Tees Stockton and Thornaby Hospital—Sen. R.M.O, Also Second R.M.O and Jun. R.M.O £175, £150 and £125 respectively
Surrey County Council—Asst. M O in Public Health Dept £600
Sydney University, New South Wales—Director of Cancer Research £2000
Wellhouse Hospital, Barnet—Asst Res M.O £250
West London Hospital, Hammersmith-road W—H P and two H S's Each at rate of £100 Also Hon Med. Reg £100
Winchester, Royal Hampshire County Hospital—Hon. Surg in Ordinary
Worcester General Infirmary—Jun. Res M O £120

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Aylsham (Norfolk), Tideswell (Derbyshire), and Linton (Cambridgeshire)

Births, Marriages, and Deaths.

BIRTHS

ADAMS—On Feb 18th, the wife of Dr David Rutherford Adams, Linden Lodge, Torquay, of a daughter

BRIGGS—On Feb 23rd, at Hawes Hill Farm Holyport, Berks, the wife of Percy J Briggs, M.A., M.R.C S, L.R.C.P, of a son

PANTON—On Feb 23rd at Lindisfarne-road, Newcastle-on-Tyne the wife of Major H F Panton, R.A.M.C, of a daughter

RAYNER.—On Feb 24th, at The Ledge, Hythe, Kent, the wife of Dr E C Rayner, of a daughter

THOMSON—On Feb 23rd, at Woodland House Penrith, Cumb, the wife of Douglas D C Thomson, M.R C S, L.R.C P, of a daughter

MARRIAGES

McDONALD—BRIGHT—On Feb 17th, at the Register Office of St. Giles Bloomsbury W C, Niel McDonald M.B Ch.B Vict. M.R.C S Eng, L R C P. Lond., to Hilda Gladys May Bright, B.A., A.R.C M.

DEATHS.

BEVEN—On Feb 18th, at High road, Lee, S E., Octavius Beven, M.D, B S, D.P H, aged 57

BOURKE.—On Feb 19th at Moreton-gardens, South Kensington, William Henry Bourke M.D

COOK.—On Feb 20th at Poole-hill, Bournemouth Issac Reginald Cook, M.B, B S Lond.

HILLIER.—On Feb 22nd at 396 Ecclesall road Sheffield, Robert John Hillier, M.R.C S, L.R C.P, aged 58

LE CRONIER—On Feb 19th at Queen's avenue Jersey Hardwick Le Cronier M R.C S, L.R C P in his 71st year

LONG—On Feb 23rd at The Close, Norwich Frederick Long, M R.C S, L.R.C P, formerly of Wells, Norfolk, in his 87th year

ROSS—On Feb 18th, at Norwood Invergordon N B, George Ernest Ross, M.A., M.B, Ch.B, late of Bishop Auckland.

N B—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

advocates of Weismannism hold that the germ-plasm is not only "continuous" but that it is proof against such influences. I am of the opinion that there is clear evidence that such an impairment does actually occur.

Secondly the results of this impairment of the germ-cell are influenced by the condition of the cell which it fertilises or by which it is fertilised. This raises the question of the mode of hereditary transmission—namely, whether this is in accordance with Mendelian laws or whether it is by blending. Numerous attempts have been made to show that mental disease and particularly mental defect is a Mendelian unit which is transmitted according to Mendelian laws. In my opinion these attempts have completely failed and I think the evidence is strongly against the impairment being a Mendelian unit and in favour of the condition of the zygote being a blending of the developmental potentiality of the two gametes. I think therefore, that if there is a similar impairment of the combining cell the developmental potentiality *of the embryo will be still further reduced* but that if this cell is healthy the developmental impairment will tend to be lessened.

Thirdly, since inheritance is of developmental tendencies only, the environment will play a part in their realisation. Adverse factors of the environment which are in operation before the development of the brain is complete may still further embarass that development and accentuate the tendency to imperfection. Factors acting after the completion of development may render any latent defect of durability patent and may cause the mental breakdown of an individual in whom the predisposition is only slight and who might otherwise go through life apparently normal.

Impairment or Devitalisation of the Germ-cell

The view I put forward, therefore, is that (with the exception of those cases which are directly caused by the environment) the various forms of mental defect, disorder and decay are manifestations of one and the same condition—namely, an impairment or *devitalisation of the germ-cell*. This occurs in varying degrees: when severe it causes brain development to be so incomplete that the individual is mentally deficient. When less pronounced brain development may take place normally, and the temple of mind may be erected but the structure is so lacking in durability that it at once begins to crumble away and dementia precox results. When the germ impairment is of still less degree mind is completely developed and may function normally for many years: indeed, should the individual live in sheltered surroundings it may do so for the whole span of life: but exposure to mental stress or physical illness or the changes incident to the climacteric or other critical period of life will be very prone to result in a breakdown and this in many cases will be the beginning of a steadily progressive dementia.

As I have pointed out however, two other factors have to be taken into account—namely the condition of the second or combining germ-cell and the nature of the environment especially during the early and rapid stage of brain growth. If the second cell is healthy and the early surroundings entirely favourable I think that a slight degree of impairment may be entirely neutralised it may even be "bred out." On the other hand, if the second gamete is similarly impaired there will be an accentuation of the process and a tendency for the developmental potentiality and durability of the brain cells to be still further lessened. This may itself give rise to mental defect or defective development may result from the operation of some comparatively trivial environmental factor.

It is clear that combinations of these three factors—namely variations in the degree of germ impairment the condition of the combining cell and the nature of the environment will be responsible for very varying results in different individuals derived from the same stock or belonging to the same family. It is well known that these differences occur and they are a cause of much perplexity, but I think they are explicable on this view. It not infrequently happens that an individual who has inherited the neuropathic diathesis mates with one who is similarly tainted. There is then a predisposition for the mental impairment to assume a more severe form in the next generation or to occur at an early period of life a process which is called "ante-dating" and which has long been known to mental specialists. The final result of this process is pronounced mental defect with sterility and extinction and hence I have termed idiocy the logical culmination of the neuropathic diathesis. In other instances a victim of the neuropathic diathesis mates with an individual who is healthy. Their offspring although carrying the taint and probably showing some impairment of mental capacity and resistance may not actually suffer from mental disease. But the fire is only smouldering and should one of these in turn mate with a neuropath or should he or his offspring be exposed to some adverse environmental influence, it may readily be fanned into a flame and dementia insanity, or mental defect result. In this way mental disease is kept alive by "carriers" who may themselves appear to be normal or who at all events do not suffer from a degree of abnormality which would be recognised as disease.

In giving this short outline of the genesis and mode of production of mental disease I wish to make it quite clear that I am only advancing a working hypothesis. The complexity of the subject is great and there are many gaps in our knowledge, but I venture to think that the hypothesis is a logical one and that it does afford an explanation of facts which are otherwise extremely perplexing.

Mental Disease and Genius

We have now to consider the bearings of mental disease upon eugenics. At the outset *it is necessary* to allude to a prevalent misconception regarding the relationship of mental disease to genius. Since Dryden proclaimed that: "Great wits to madness nearly are allied, and thin partitions do their bounds divide," it seems to have been commonly assumed that genius is so intimately connected with insanity that we must cheerfully put up with the latter for the sake of the former, and that any attempt to diminish mental disease by restriction of propagation may have the disastrous result of robbing the world of a possible superman. Now I fully admit of course, the great benefits which have resulted to mankind from the works of men of genius; it is indeed to the existence of such men of outstanding ability in the various departments of human knowledge, thought, feeling and action that we largely owe our past progress and our present civilisation. There is also no doubt that some of these men have been of poor physical constitution and prone to ill-health, whilst others have been eccentric and possessed of delicately balanced minds. But I have searched in vain *for any* close correlation between genius and insanity, and I believe the commonly accepted view that such exists to be a completely mistaken one. On the contrary, I think it will be found that the great majority *of men and women of outstanding ability* have been particularly sane and have come of a sane and healthy stock. It is, therefore an utter fallacy to assume that the elimination of mental disease would mean the elimination of genius, and I am in complete agreement with the views on this point expressed by Major L. Darwin in his valuable work on "Eugenic Reform."

The Damage to the Race inflicted by Mental Disease

On the other hand there is clear evidence that mental disease is closely correlated with social incapacity, inefficiency, and retrogression. And serious as is the damage done by mental disease to the present generation, I believe that inflicted upon the race to be even greater. *There* can be no question that one thing which is urgently needed is the prevention of the propagation of those persons who suffer from any form of mental disease due to inheritance.

In the case of mental defectives two methods for preventing this propagation have been suggested—namely, sterilisation and segregation. This is not the place to discuss in detail their respective merits. I will merely say that after careful consideration of all the points involved such for instance as practicability cost the happiness of the defectives and the effect upon the community of the release from care of persons who are incapable of caring for themselves I have come to the conclusion that the advantages of segregation far outweigh those of sterilisation. In saying this I realise that there are *many persons suffering* from the milder grades of mental defect who are not themselves in need of institutional care and in whose case the chief danger is propagation. Even here I consider that there are abundant reasons *against* sterilisation, and I believe that if ascertainment were only properly carried out so that the whereabouts of each person was known: if every person not in an institution was placed under statutory supervision and the methods of such supervision improved so that he could be removed to an institution should circumstances arise to make this desirable, and if the marriage of mental defectives was made illegal, the risk of propagation would become practically negligible.

It is necessary to point out, however that even if, by sterilisation or segregation or supervision, we *could* absolutely prevent propagation by defectives we should by no means eliminate mental defect *or disease indeed it is very* doubtful if we should produce any considerable effect at all. For in spite of the fact that approximately 80 per cent. of such cases are due to inheritance, the proportion who are the *offspring* of a *mentally defective parent is a* very small one. The great majority of defectives are produced by parents who have either been insane, or have been carriers and have not been certifiable at all. The sterilisation or segregation of every *defective* would merely prevent the birth of that relatively small number who are the offspring of parents who are themselves defective. I think that if it were possible to apply either of these methods to the insane the effect would be considerably greater for propagation by the insane is much more extensive than by defectives, but even then we should be a long way from the eradication of mental disease In order to produce any really marked diminution in the amount of mental disease throughout the community it would be necessary to sterilise or segregate every carrier of the neuropathic diathesis, which is obviously impossible

But were it even possible to do this, we should be faced with another difficulty There is every reason to think that the causes of germ impairment are still at work, and, this being so, a fresh crop of persons suffering from the neuropathic diathesis would soon come into existence Although we have succeeded in removing some of the causes, and are in process of removing others, it seems likely that every change in social conditions and every advance in evolution brings in its train certain inimical agencies which may produce impairment of the germ-cells of those individuals who are unfit to continue the march I have little doubt that for many generations to come devitalisation of the germ-cells and the neuropathic diathesis will continue to be produced It is possible that this process may even be a salutary one and that if only such affected persons could be prevented from contaminating the healthy, it might, in the long run and from the racial point of view, be productive of good rather than harm Unfortunately nothing is done to prevent such contamination, and there is a very real danger of the dragging of sound stocks into the vortex of disease and of the diffusion of the impairment throughout the mass of the community

The Need for Education in Eugenics

What, then, is to be done? My own feeling is that there is one way, and one way only, by which we can hope to stem degeneracy and advance racial progress That way is by an educational campaign whereby the whole community shall be enlightened as to the part played by inheritance in the causation of health and disease, in other words, by developing throughout the nation the eugenic ideal By the eugenic ideal I mean not merely the intellectual recognition of the desirability of producing sound and healthy offspring, but a feeling, or an emotion, regarding this idea, a sense of shame and repugnance at the thought of bringing into the world delicate and defective children, a sense of satisfaction, of increased self-respect, and of duty well done at the thought of producing children who are healthy and capable This may sound unpractical, perhaps, to some persons even fantastic, but I do not think it is either In terms of psychology such an ideal constitutes a sentiment and the human mind has a great capacity for acquiring sentiments It has already developed the religious and the aesthetic sentiments to a very high degree, and, just as all moral and cultured persons now feel deep repugnance at the idea of committing a crime, or when confronted with a disharmony in music, colour, form, or social decency, so I believe it to be equally possible for them to develop the eugenic sentiment, or if we prefer so to call it, conscience

No doubt our knowledge is far from complete, but there is quite enough to go upon, and I think the education of the nation should be the main objective of this society It is impossible to conceive of any more important task or of one which would be attended with greater benefit For it does not admit of any question that in the last resort the very existence of a nation must depend upon the condition of its citizens, and it is extraordinary that a people which prides itself upon its sound common sense and business capacity should be content to spend millions upon the cure, care, and maintenance of persons suffering from disease, and take practically no steps to prevent it at its source

A CORRECTION.

To the Editor of THE LANCET

SIR,—In recording (THE LANCET, Feb 26th) the gratifying appointment of Colonel J G Martin to be honorary physician to the King, you say "It is understood that this is the first time this honour has been granted to a Territorial officer" Your informant must, I think, have been under a misapprehension, for in fact such appointments have been regularly made from the Territorial Army for a number of years

I am, Sir, yours faithfully,
X Y Z
March 1st, 1927

UNITED STATES MEDICAL SERVICES

THE annual reports of the Medical Directors of the United States Army, Navy, and Public Health Service are summarised in the *Military Surgeon* for February The Surgeon-General of the Public Health Service gives the death-rate in 30 States (out of the 48) as 11 7 per 1000 The case-mortality of small-pox was over 30 per cent in Washington and Minneapolis (470 cases), whilst in Indianapolis and Omaha there was no death among 1000 patients In a population of 100 millions (36 States) the death-rate from tuberculosis was about 0 82 The mortality from typhoid slightly increased, but the programme for controlling venereal disease is believed to have been a great success Numerous activities of the service are mentioned, and accounts are given of how it fought plague-infected rodents in California, and how it used aeroplanes to spread arsenical dust on lakes to control malaria by destroying the larvæ of mosquitoes Immigrants are now inspected before they leave Europe, but immigration inspection is still continued at ports in the United States, as all foreign seamen must be examined as prospective immigrants In 1925 there were 872,842 foreign seamen so examined

In the United States Army in 1925 there were 983 medical officers in charge of the health of 135,840 men This gives a ratio of 1 to 138, and the Surgeon-General thinks that the medical strength should be higher Admissions for disease amounted to 518 per 1000, whilst the total death-rate was 3 77, of which 1 71 was accounted for by disease The lowest mortality in any group was actually among the white troops in Panama, which shows what skilled sanitation can achieve The death-rates from pneumonia and tubercle were almost identical at about 0 23 per 1000, whilst suicide (0 31 per 1000) was the highest single cause of death Invaliding was 17 per 1000, but half those invalided were in their first year of service Invaliding for tubercle was 1 72, whilst for mental disease the rate was three times higher There were four cases of typhoid with two deaths Athletics occasion many admissions for injury In ten years before the establishment of a dental corps (1887-97) there were 36 cases of arthritis per 1000, but in the last five years the figure has been only 13 Thanks to the inspection of milk and meat by the Veterinary Service, 97 2 per cent of the animal food condemned was dealt with before purchase, which meant a great saving to the Government The annual physical examination of officers is said to be so generally approved that reserve officers are asking that it may be extended to them

The United States Navy had in 1925 about 113,000 men, admissions were 531 9 per 1000 from all causes; the death-rate was 3 60 (from disease 1 53) There were only four cases of typhoid and general hygienic conditions were described as good

HUNTER AND ABERNETHY.

To the Editor of THE LANCET

SIR,—Sir Berkeley Moynihan's Hunterian Lecture to the Royal College of Surgeons of England on Hunter and Abernethy was revealing with its wealth of illustration and rare vision We may well rejoice that we have as President of the College a man of liberal education whose theme is Life

But there is one point I would like to make Notwithstanding Abernethy's evidence of Hunter's "heavy delivery and unengaging," I cannot but believe that Hunter was eloquent and not unattractive "Sincerity is the foundation of expression in writing" said John Morley, and surely it must be so in speech There are different kinds of accent Livingstone was only a stuttering orator, and how gladly we would listen to the sincerity of a Livingstone or a Hunter

I am, Sir, yours faithfully,
RICHARD GILLBARD
Willesden Green, Feb 28th, 1927

The History of Harley Street—In an annotation with this title (THE LANCET, Feb 26th, p 449) we stated that Sir William Jenner was the first consultant to take up his residence in Harley-street Mr Percy Flemming, in his address at the Royal Society of Medicine, described him only as one of the earliest to go there, he was the first member of the University College Hospital staff to make the move

VOLUNTARY HOSPITAL POLICY—Speaking at the annual meeting of the General Lying-in Hospital, Lambeth, last week, Lord Onslow, Under Secretary for War, said that the Government were firm supporters of the voluntary hospital system, and expressed his belief that the grant of £500,000 towards meeting the maintenance deficits from which the hospitals were suffering after the war had not only not harmed the voluntary principle but had benefited it by setting up local committees

OPHTHALMOLOGY IN DORSET—The Society of Dorset Men in London has presented a new ophthalmic department to the Dorset County Hospital, Dorchester, in memory of the first hon secretary of the Society, the late Mr William Watkins Sir William Lister, in a speech at the opening ceremony, said that he did not believe that the sight of the nation had deteriorated, and that the contrary impression was based upon the fact that children's eyes were now for the first time being cared for

Goulstonian Lectures

ON

CARDIAC DYSPNŒA.

The First Goulstonian Lecture in 1927, delivered before the Royal College of Physicians of London on March 10th

BY FRANCIS R FRASER, B.A CAMB, M D,
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LECTURE I

IN selecting the subject of the lectures I have chosen cardiac dyspnœa, a symptom present in many diseased persons, because a number of observations bearing on this subject have been made in the last few years in the department under my direction by several members of the staff.

In considering the disturbances of respiration that result from disease, the respiratory apparatus may be regarded as consisting of the following structures (*a*) the respiratory centre situated in the medulla oblongata; (*b*) the lungs, respiratory passages, walls of the thoracic cavity, and the muscles of respiration forming the respiratory mechanism, and (*c*) the blood and the circulatory apparatus

The respiratory centre sends impulses to the muscles of respiration, which so alter the size of the thoracic cavity that the lungs expand and contract alternately, and the air sacs within the lungs are kept supplied with air from the external atmosphere through the respiratory passages By this means the blood circulating through the lungs continually takes up oxygen from the air sacs, and being then distributed to the tissues of the body supplies these with the necessary oxygen for their needs, and taking up carbon dioxide from the tissues carries it to the lungs, where it passes into the air sacs and so into the external atmosphere.

That the necessary amount of oxygen may be economically supplied to the tissues of the body under the varying conditions of normal life, and the carbon dioxide efficiently removed, a close coördination between the respiratory centre and the blood-flow is essential Increased activity of the body requires increased oxygen-supply, and results in increased blood-flow and increased ventilation of the air sacs This increased ventilation is the result of increased activity of the respiratory centre The variations in pulmonary ventilation that necessarily are taking place all the time in normal life are not noticed by the individual They do not give rise to consciousness of their occurrence Extreme degrees of increased respiratory activity, however, in healthy individuals give rise to unpleasant sensations called breathlessness or dyspnœa In diseased states dyspnœa may occur much more readily than in health In diseased states subjective distress will result from an increase in activity of the body that in health would cause no change of which the individual is conscious, though in health an increase of respiratory activity and an increase in ventilation have occurred As Means[1] has pointed out, it is only when the respiratory mechanism cannot perform the task demanded of it that the movements enter the field of consciousness He states "Dyspnœa will occur whenever the respiratory mechanism cannot with ease functionate to the extent that bodily processes require" Increased respiratory activity without distress or consciousness of effort may be termed hyperpnœa, and this is present at some stage previous to the development of dyspnœa—at any rate, in health In disease, however, there may be dyspnœa without actual increased ventilation—for example, in the presence of lesions of the respiratory mechanism that mechanically prevent increased ventilation By adopting this conception of dyspnœa, an analysis of the causes of dyspnœa involves, as Meakins and Davies[2] have pointed out, the consideration of: (1) factors causing increased pulmonary ventilation or hyperpnœa, and (2) factors causing inability of the respiratory mechanism to meet the demands for increased pulmonary ventilation, and so distress

INCREASED VENTILATION.

In his book on "Respiration" J. S. Haldane[3] has discussed very fully the factors that may affect the respiratory centre to cause increased respiration. These factors may be divided into chemical and nervous The chemical factors that are known to influence the activity of the respiratory centre are. (1) the pressure of oxygen; (2) the pressure of carbon dioxide, and (3) the H-ion concentration in the blood supplied to the centre

It may be assumed that in healthy individuals the partial pressures of the gases in the arterial blood are almost equal to the pressures of these gases in the alveolar air, and the pressures in the alveolar air can be varied by varying the composition of the inspired air Lowering of the pressure of oxygen in the inspired air, as occurs gradually in balloon ascents, &c, is not accompanied by altered respiration, but a rapid lowering of the oxygen in the *inspired* air results in *immediate and severe* hyperpnœa. Haldane and Poulton[4] showed that the failure of a gradual reduction of oxygen to cause noticeable hyperpnœa is due to the gradual lowering of the carbon dioxide pressure that results from the slight increase in ventilation that takes place, and that this lowering of carbon dioxide pressure has not time to occur in the rapidly produced lowering of the oxygen tension. They concluded that the effect of reduced oxygen pressure in the arterial blood is to lower the threshold of the centre for carbon dioxide, so that it is stimulated by lower carbon dioxide pressures when oxygen deficiency is present Haldane, Meakins, and Priestley[5] investigated the respiratory response to lowered oxygen pressures and concluded that "the respiratory response to oxygen-want is in three stages (*a*) increased depth of respiration and increased ventilation per minute, owing to lowered carbon dioxide threshold; (*b*) periodic breathing, unless the oxygen-want is considerable; and (*c*) frequent and correspondingly shallow breathing" These conclusions, based on observations involving the reduction of the oxygen pressure in the arterial blood, may be accepted as the effect of oxygen-want on the respiratory centre no matter how produced. In any condition in which the supply of oxygen to the tissues of the centre is not sufficient for the needs of the centre these effects may be expected.

Haldane and Priestley[6] showed that changes in the carbon dioxide pressure in the alveolar air cause pronounced changes in ventilation. An increase of carbon dioxide pressure of 1 5 mm over the normal 40 mm. of Hg doubles the pulmonary ventilation, and a fall of the same extent causes apnœa This action is independent of afferent nervous stimuli to the centre, and is due to the changes in the carbon dioxide pressure in the arterial blood supplied to the centre There is still much doubt as to whether this action is a specific one due to carbon dioxide or whether it is an action common to all acids

Beddard, Pembrey, and Spriggs[7] showed that excessive breathing is characteristic of the state of acidosis, and this led to the appreciation of the fact that a rise of hydrogen-ion concentration in the arterial blood due to any acid acts as a stimulant to the respiratory centre The addition of a fixed acid, such as occurs in the ketosis of diabetic coma, results in a combination of the acid with base, so that less base is available for the carriage of carbon dioxide Thus will cause a rise in the ratio of dissolved carbon dioxide to combined carbon dioxide Hasselbalch[8] showed that this relationship—the ratio $H_2CO_3/NaHCO_3$—is the most important indication of the hydrogen-ion concentration in the blood. A lowering of the denominator due to the abstraction of base to combine with an increase of some fixed acid will result in an increase in the value of the ratio and an increase of hydrogen-ion concentration until the carbon dioxide pressure, and therefore the volume of dissolved carbon dioxide—the numerator in the ratio—can be lowered by increased respiratory activity Lowered carbon dioxide pressure in the alveolar air will thus be produced, with lowered pressure and lowered volume of carbon dioxide in the arterial blood, until the ratio returns to its original value

In this way it seemed possible to regard the effect of carbon dioxide on the centre as an effect of change in hydrogen-ion concentration rather than a specific effect of carbon dioxide Hooker, Wilson, and Connett,[9] however, showed that blood at a given hydrogen-ion concentration with a high carbon dioxide pressure caused a stronger stimulation of the respiratory centre than blood at the same hydrogen-ion concentration with a low carbon dioxide pressure This suggested a specific action from carbon dioxide, and Scott [10] and Collip [11] came to similar conclusions The work of Jacobs [12] allows of a reconciliation between these opposing views He demonstrated that dissolved carbon dioxide has a greater power of penetrating cell membranes than combined carbon dioxide has This fact would account for the apparent greater influence of carbon dioxide compared with other acids, and permits the conclusion that the real stimulus is the hydrogen-ion concentration within the tissues of the respiratory centre itself In health the hydrogen-ion concentration at the centre will no doubt be mainly regulated by the condition of the arterial blood, but it is the condition in the centre itself that determines its activity

Whether increased breathing is the result of increased carbon dioxide in the arterial blood, or of an increase of fixed acids, or of oxygen-lack, may be determined by an examination of the arterial blood In the first case there will be an increase in the content of the carbon dioxide in the blood and a high carbon dioxide pressure When the stimulation is due to an increase of fixed acids, there will be diminished carbon dioxide content and a lowered carbon dioxide pressure through increased ventilation In both cases the stimulus to the centre will be a raised hydrogen-ion concentration and the arterial blood will be saturated with oxygen to the normal extent When hyperpnœa is due to oxygen-lack in the arterial blood, and the resultant lowering of the threshold of the centre to carbon dioxide pressure and to hydrogen-ion concentration, the arterial blood will show a lowered carbon dioxide content and pressure from increased ventilation and a lowered hydrogen-ion concentration, and will be saturated with oxygen to an extent less than normal If, however, there is increased breathing due to some stimulus at the centre other than an abnormality in the quality of the blood supplied to it the examination of the arterial blood will show normal saturation with oxygen, low carbon dioxide content and pressure, and low hydrogen-ion concentration These differences are shown in Table I

Table I

Cause of hyperpnœa	Changes in arterial blood			
	O_2 saturation	CO_2 volume	CO_2 pressure	H-ion concentration
O_2 lack in arterial blood	Low	Low	Low	Low
CO_2 excess in arterial blood	Normal	High	High	High
Fixed acids in excess	"	Low	Low	"
Stimulus at centre independent of quality of arterial blood	"	"	"	Low

On the examination of the arterial blood in cases of hyperpnœa single observations give results that occasionally indicate one of these conditions to be present As a rule, however, this is not so, since the body cannot be considered as a respiratory system only Changes in the reactions of the tissues generally and of the renal organs especially, take place at the same time as the respiratory functions are disturbed or as a result of the disturbance Henderson an Haggard [13] showed that in the presence of an altered carbon dioxide pressure in the blood a readjustmen of base takes place between the tissues and the blood, so that the amount of alkali available for th carbon dioxide is altered The alteration is in such a direction that changes in the hydrogen-ion concentration are prevented or are minimal In the diseased states in which hyperpnœa occurs more than one of the type conditions may be present—for example, in pulmonary lesions both oxygen-lack and raised carbon dioxide pressure may be present—and kidney disturbances with faulty excretion of acid bodies may be present at the same time as pulmonary or circulatory abnormalities

There is evidence pointing to influences on the respiratory centre by afferent nervous impulses The reflex of Hering and Breuer [14] acts through the vagus, and consists of afferent impulses consequent on the act of inspiration whereby inspiration is checked and expiration occurs The stimulus for these impulses is unknown, but the stretching of the lung substance has usually been regarded as the effective agent The removal of these afferent impulses by section or freezing of the vagi results in slower and deeper breathing

Laqueur and Magnus [15] demonstrated that rapid breathing results in animals from the inhalation of phosgene gas Dunn[16] showed that rapid breathing resulted when a fine emulsion of potato starch was introduced into the pulmonary circulation and produced obstruction of capillaries or of the finer arterioles This rapid breathing was independent of oxygen-want, and was abolished by section of the vagi Binger, Brow, and Branch[17] repeated Dunn's experiments and confirmed his observations They showed that section of the vagi converted also the increased breathing that resulted from oxygen-want or carbon dioxide excess into a slow deep rhythm, and give reasons for doubting that the rapid breathing is due to afferent stimuli of the centre. In their opinion structural changes in the lung substance limited the variations in lung volume on inspiration and expiration and produced shallow breathing, and that the shallow breathing led to rapid breathing through the Hering-Breuer reflex It is doubtful whether such rapid breathing, due to mechanical limitation to inflation and deflation, results necessarily in hyperpnœa in the sense of increased alveolar ventilation, but it is probable that it can be a factor in the production of subjective discomfort or dyspnœa

The higher centres can also affect the respiratory centre The voluntary control of respiratory movements is evidence of this, and it is probable that the tachypnœa seen in hysteria and in emotional states is of a similar nature In addition to the afferent stimuli from the lungs there may well be influences on the centre through the nervous system from other parts of the body The immediate cessation of the respiratory movements on plunging into cold water is suggestive of a reflex from the skin, but there is no clear evidence of the paths of these reflexes if they do exist

In the last few years a considerable number of observations have been made in various countries in an endeavour to elucidate the mechanism of the dyspnœas seen in cases of heart failure With the help of my colleagues, G Graham, C F Harris, D'Arcy Prendergast, R Hilton, and G C Linder, a number of observations have been made on patients with cardiac disease in the past three or four years and I propose next to discuss these results, to compare them with the results of other observers, and to discuss their bearing on the solution of the problem of cardiac dyspnœas These observations have a bearing on the causes of hyperpnœa, and consist of examinations of arterial blood For work of this nature, involving the quantitative estimation of blood gases and of blood reactions, several observers, working as a team, are necessary The persons constituting the team have had unavoidably to be changed from time to time, but the work of the team has been consecutive, and I have the permission of my colleagues to utilise the results in this discussion

A group of cases of heart failure accompanying mitral stenosis and auricular fibrillation were investigated because such cases show marked dyspnœa as a rule, and because this condition is seen in younger patients, so that it is possible to obtain a state of heart failure uncomplicated by lung disease, such as chronic bronchitis and emphysema, or by the vascular and renal changes so common in older patients In addition groups of cases of heart failure with high blood pressure and arterial disease, and with asthma or chronic bronchitis and emphysema, have been studied

Oxygen Saturation of Arterial Blood

The group of cases with mitral stenosis and auricular fibrillation consisted of eight patients, all of whom had severe dyspnœa on admission The observations were frequently not made until a few days after admission, when some degree of recovery had occurred, but all had marked dyspnœa and orthopnœa at the time All but one had râles at the bases of the lungs and some œdema there, though slight In some cases second or third observations were made during recovery, and in two instances observations were made on second admissions for recurrence of heart failure The blood was obtained by puncture of the femoral artery, and the oxygen capacities and saturations were estimated by the Haldane apparatus for blood-gas analysis

The results are shown in Table II The saturation of the arterial blood with oxygen in health should not be lower than about 95 per cent One case only had a value clearly lower than this, No 5 It is of interest, further, to note that at the second observation on this patient, at a time when he seemed somewhat improved in general condition, the oxygen saturation was still lower than on the first occasion The dyspnœa, cyanosis, and œdema were not more marked in this patient than in several of the others, but he was peculiar in that there was *friction* at both bases on admission, and that on the occasion of the second observation he was complaining of acute pain in the right side of the chest, where fine friction was audible It is probable, therefore, that in addition to heart failure this patient had an inflammatory lesion in the lungs, or possibly an infarct All the others showed normal saturation, both during the stage of severe failure and, in the cases where second observations were made, in the stage of recovery or improvement. Case 2 is of special interest, because the attack of heart failure was acute and of short duration and because the second observation was made after the auricular fibrillation had ceased and normal cardiac mechanism been restored by the use of quinidine The observations on Case 3 are peculiarly valuable, because they extend over a period of two years and because of the extreme degree of failure and of dyspnœa at the time of the fourth observation. At the time of the first observation on Case 4 a severe degree of digitalis intoxication was present and was the cause of the increased failure that necessitated admission to hospital

TABLE II.

Oxygen saturation of arterial blood in cases of mitral stenosis and auricular fibrillation, with dyspnœa and orthopnœa

Case No	Sex	Age	Date	Ventricular rate	Dyspnœa	Cyanosis	Oxygen capacity vols	Oxygen saturation
							%	%
1	F	35	15/12/24	90	+	+	17 25	98
2	M	25	22/12/24	116	+ +	Sl	17 7	97
			12/1/25	70	—	—	16 9	97
3	F	43	18/6/23	104	+ +	+	—	96
			25/8/23	80	+	+	—	95 3
			9/7/23	52	+ +	+	—	97 5
			4/1/25	150	+ + +	+ +	16 4	98
			19/1/25	76	+	+	17 5	98
4	F	27	9/11/25	60	+ +	+	18 4	97
			7/12/25	76	+	+	17 2	96
			13/4/26	76	+ +	+	17 9	97
5	M	34	25/1/26	70	+ +	+	14 4	92
			8/2/26	72	+ +	+	15 8	84
6	F	26	8/12/24	64	Sl	Sl	14·0	100
7	M	59	23/4/23	78	+	+	—	94 4
8	F	67	16/6/24	76	+	+	21 2	93 8

Sl = Slight

The group of cases with high blood pressure and arterial disease consists of six patients There was no evidence of endocarditis in any of them They were on the whole considerably older than those of the first group Cyanosis was not so obvious, and the dyspnœa tended to occur in attacks, but dyspnœa and orthopnœa were present in all at the time of the arterial puncture In two instances the Cheyne-Stokes type of periodic breathing was seen The results are shown in Table III In this group also the absence of unsaturation of the arterial blood is the striking feature Case 9 had œdema of the legs and ascites, a right bundle-branch lesion, and numerous ventricular extrasystoles The systolic blood pressure was 166 mm of Hg and the diastolic 120 mm The condition had commenced to improve at the time of the first observation The second observation was made during a paroxysmal attack of dyspnœa, and the oxygen saturation was the same as before There was a striking fall in the oxygen capacity and hæmoglobin content of the blood, but this was probably due to the onset of erysipelas that became manifest next day, and from which he died nine days later Case 10 was very similar, but had Cheyne-Stokes breathing a day or two before the first observation At the time of the second observation he was much worse and was unconscious. There was then distinct cyanosis, and an oxygen saturation of only 91 per cent He died a few hours later Case 11 had chronic gout, a right bundle-branch lesion, and blood pressure of 174 mm systolic and 116 mm diastolic There was no œdema, but orthopnœa was constant This patient was liable to attacks of severe nocturnal dyspnœa, when cyanosis appeared with diffuse râles in the lungs and blood-stained sputum. Case 12 had a blood pressure of 291 mm systolic and 170 diastolic There was some œdema of the legs and albuminuric retinitis The blood-urea was only 0 055 per cent At the time of the first observation there was pronounced Cheyne-Stokes breathing, and the arterial blood was drawn during a period of hyperpnœa At the second observation the condition had improved, there was till a periodicity in the respiratory rhythm, but there were no

TABLE III

Oxygen saturation of arterial blood in cases of high blood pressure, arterial disease, and myocardial degeneration, with dyspnœa and orthopnœa

Case No	Sex	Age	Date	Pulse rate	Dyspnœa	Cyanosis	Oxygen capacity vols	Oxygen saturation
							%	%
9	M	60	28/9/25	80	+	—	17 3	96
			31/11/25	108	+ +	—	13 8	96
10	M	70	24/11/24	75	+	—	17 5	98
			1/12/24	100	+	+	18 3	91
11	M	61	5/10/25	75	+	—	18 0	95
12	M	58	11/2/24	64	+P	Sl	16 8	100*
			25/2/24	75	+Sl p	—	18 0	96†
			17/3/24	58	Sl	—	16 7	97 7
13	F	53	28/1/24	80	+ + +	+ +	17 3	87 8
			3/3/24	84	+ +	+	21 0	86 7
			31/3/24	88	+	Sl	18 0	99
14	F	48	21/6/26	90	+	+	14 4	91

P = Periodic
* Blood drawn during hyperpnœic phase
† Blood drawn during both phases

definite apnœic pauses. At the third observation the condition was greatly improved, the breathing had lost all periodicity, but orthopnœa was still present. Case 13 is important, as it showed marked oxygen unsaturation. This was the only case in the group that showed cyanosis comparable in degree with that of the cases of mitral stenosis and auricular fibrillation in the first group. The cyanosis was of a more leaden hue than in the cases of the first group The blood pressure was 234 mm systolic and 150 mm diastolic Generalised œdema was pronounced, and there was ascites and fluid in the pleural cavities At the time of the first observation improvement had commenced and was well marked by the time of the second observation. When the third observation was made the patient had commenced to get up; there was no obvious œdema nor ascites. There were still some râles at the bases of the lungs It is of importance to note that at the second observation, when the patient's general condition was greatly improved and the dyspnœa, œdema, and cyanosis were less, the oxygen saturation of the arterial blood had not increased Case 14, who also showed a definite oxygen unsaturation, had œdema of the legs and râles at the bases of the lungs There was marked orthopnœa and definite cyanosis The blood pressure was 262 mm systolic and 152 mm diastolic Severe exacerbations of dyspnœa occurred from time to time, and six weeks after the arterial blood was examined the patient died in uræmia Autopsy showed chronic interstitial nephritis At the time of the observation on the arteria blood the blood-urea was 0 060 per cent, and the patient's condition was essentially one of heart failure.

The third group comprises three cases in which definite pulmonary disease was present in addition to heart failure The results of the estimation of the oxygen content of the arterial blood are shown in the first part of Table IV. Case 15 had aortic regurgitation and a greatly hypertrophied and dilated heart There was a history of bronchial asthma extending over many years, and pronounced emphysema was present The observations extend over two periods of admission to hospital On both occasions at the first observation on the arterial blood severe orthopnœa was present There was œdema of legs and back and râles at the bases of the lungs On all occasions the oxygen saturation of the arterial blood was within normal limits Case 16 had a long history of bronchitis and of bronchial asthma The blood pressure was 180 mm systolic and 92 mm diastolic, and the heart was hypertrophied and the arteries hard Orthopnœa was present and there were râles at the bases of the lungs and rhonchi all over There was slight cyanosis and œdema of the back and legs The patient was commencing to improve when the arterial blood was examined, and the oxygen saturation was at the lower limit of the normal. Case 17 was that of a man, aged 35, with severe chronic bronchitis and emphysema The right side of the heart was enlarged and the fingers clubbed Cyanosis and orthopnœa were marked The lower thorax was sucked in with each inspiration, and râles and rhonchi were numerous over both lungs In this case the oxygen saturation was definitely low.

TABLE IV

Oxygen saturation of arterial blood in three cases of chronic pulmonary disease with heart failure, and in two cases of heart failure not included in other groups All had dyspnœa and orthopnœa

Case No	Sex	Age	Date	Pulse-rate	Dys-pnœa	Cyan-osis	Oxygen capacity vols	Oxygen satura-tion
							%	%
15	M	51	15/6/25	73	++	Sl	19 5	100
			29/6/25	75	+	Sl	19 75	100
			15/2/26	96	+++	+	19 3	100
			22/2/26	84	+	Sl	19 8	96
16	M	59	7/6/26	80	+	Sl	17 5	94
17	M	35	19/10/25	80	++	++	19 4	91
18	M	56	18/1/26	92	+A p	Sl	16 3	96
19	F	65	12/10/25	?	Sl	–	14 3	92

A p = Angina pectoris

In Table IV. are included two cases that do not fall into any of the above groups Case 18 had aortitis and aortic regurgitation, probably syphilitic in origin, and suffered from attacks of angina pectoris The arterial blood was taken during an attack when there was orthopnœa, a clammy sweat, and distinct cyanosis There were râles at the bases of the lungs, and the respiratory movements were irregular, apparently from involuntary interference The oxygen saturation was normal Case 19 was that of a frail woman, with carcinoma of the uterus and considerable emaciation There were numerous ventricular extrasystoles, a few râles at the bases of the lungs, and slight orthopnœa There was no apparent cyanosis and the oxygen saturation was definitely reduced.

These results point to the absence of a consistently low oxygen saturation in the dyspnœa of heart failure In general the saturation is within normal limits, and it would appear that it is in exceptional cases only that a low saturation is seen The cases in this series in which a low saturation was found are of interest Cases 5 and 17 had evidence of pulmonary disease in addition to heart failure Case 19 had carcinoma of the uterus, and the patient was in a feeble dying condition At the time of the second observation on Case 10 the patient was unconscious and died a few hours later Case 13 recovered, but on admission was in an extremely critical condition, with severe congestive failure and a considerable amount of fluid in the pleural cavities Case 14 did not appear so seriously ill on admission as Case 13, but did not respond to treatment, and died in uræmia of chronic interstitial nephritis a few weeks later

The results of other observers are in general agreement with these observations Harrop,[18] Barach and Woodwell,[19] Campbell, Hunt, and Poulton,[20] Peters and Barr,[21] and Meakins, Dautrebande, and Fetter [22] have published their observations and these have been collected and discussed by Meakins and Davies [2] They conclude that unless there are obvious pulmonary disturbances present as a result of the heart failure the oxygen saturation of the arterial blood is within normal limits The results in this series hardly justify such a conclusion, but any criticism must depend on the meaning of the word "obvious." We endeavoured, when possible, to select cases that had little evidence of pulmonary involvement, but all had obvious respiratory distress when at rest in bed, and with few exceptions there were râles at the bases of the lungs at the time of observation Of the cases with mitral stenosis and auricular fibrillation Case 6 alone was without pulmonary râles In the second group Cases 9, 11, and 12 were free of basal râles The results recorded by Eppinger, Papp, and Schwarz [23] are in agreement with the observations in this series, and it would appear that some notice must be taken of the cardiac lesion accompanying the heart failure In cases of mitral stenosis a degree of œdema of the bases of the lungs that can be recognised clinically may be present without oxygen deficiency in the arterial blood, but in heart failure due to myocardial degeneration, pulmonary congestion, and œdema are usually accompanied by oxygen deficiency.

Cyanosis —Lundsgaard and Van Slyke [24] have discussed the factors responsible for cyanosis, and have pointed out that two factors may be present in heart failure—peripheral stasis and deficient oxygenation of the blood in the lungs They suggest also that distension of capillaries and an increase in the number of open capillaries may be contributing factors They point out that in mitral valve disease cyanosis may appear at an earlier stage of failure than in other types of heart disease A comparison of the results shown in Tables II and III shows agreement with this, and justifies the conclusion that while cyanosis is pronounced in cases of mitral stenosis, even when there is no deficient oxygenation of the arterial blood, in cases of myocardial degeneration cyanosis is only pronounced when failure is advanced, lung involvement severe, and deficient oxygenation of the arterial blood present Case 2 is exceptional in that only slight cyanosis was noted, even when dyspnœa was severe It is possible that a definite aortic regurgitation, which was present in addition to mitral stenosis, may account for the peculiarity in this instance.

It is justifiable to conclude, therefore, that oxygen deficiency in the arterial blood or deficient oxygenation of the blood in the lungs is not present with any consistency in cases of cardiac dyspnœa It is found when (*a*) pulmonary disease is present in addition to heart failure, (*b*) in the presence of gross congestion and œdema of the lungs, and (*c*) in feeble or dying patients

It is conceivable that the normal oxygen saturations are the result of increased ventilation, and that the increased ventilation is primarily due to a deficiency in the oxygenation of the arterial blood If a deficiency were primarily causal the percentage saturations in the presence of severe dyspnœa would be at best about the lower limits of the normal But this is not so In most instances the figures are well within the normal limits Further, it is difficult to support the view that arterial oxygen deficiency is a cause of the dyspnœa in Case 13 in which a lower saturation was found at the second observation when the patient was greatly improved in general condition and the dyspnœa was markedly less than at the time of the first observation That it is only because of the hyperpnœa that the oxygen saturations are maintained within normal limits is probable Morphia, 1/8 gr, was administered hypodermically in Case 15, and an examination of the arterial blood drawn half an hour later showed a drop in the oxygen saturation from 100 to 80 per cent, accompanied by a cessation of the distress and of the exaggerated respiratory movements

If, then, there is a cause of the hyperpnœa and dyspnœa of heart failure common to all cases, it cannot be deficient oxygenation of the blood in the lungs

(*The bibliography, to which references are given in this lecture, will appear with the third lecture*).

Lettsomian Lecture

ON THE

SURGERY OF THE SPINAL CORD AND ITS MEMBRANES.

Being the Second Lettsomian Lecture in 1927, delivered before the Medical Society of London on March 9th, 1927,*

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IN 1908 Spiller read a paper before the College of Physicians of Philadelphia entitled Circumscribed Serous Spinal Meningitis, a Little Recognised Condition Amenable to Surgical Treatment In 1903 a case had been reported by Spiller, Musser, and Martin, in which an exploration for a tumour had revealed only a cystic condition— a delicate pial cyst"— of the meninges Beyond doubting its possible parasitic origin, no suggestion was made as to its ætiology or pathogenesis

In his paper Spiller said .—

> "Almost nothing is known as to the origin of apparently idiopathic collections of fluid within the pia-arachnoid The fluid may be from the blood-vessels of the pia, and the mesh-like structure of the leptomeninges may predispose to adhesions, but why these cysts occur in any given case, especially where there are no evidences of inflammation, we do not know The symptoms are those of circumscribed compression of the spinal cord, and the condition cannot be distinguished clinically from tumour of the cord"

Since then an increasing interest has been shown in this condition, under many different designations, all descriptive of the local condition usually found, but none attempting to explain its ætiology or pathogeny "Serous spinal meningitis" (Oppenheim), "localised hydrops of the meninges" (Schlesinger), "arachnitis adhæsiva circumscripta" (Krause), "chronic spinal meningitis" (Horsley), "arachnoïdite cloisonnée" (Bouché) "meningitis serosa und serofibrosa" (Gerstmann)—such are the various names used for a condition associated pathologically with the presence of adhesions between the spinal theca and the arachnoid, with consequent damming up under pressure or with localised cyst formation, of the cerebro-spinal fluid, and evidenced clinically by the symptom-complex of a medullary compression

MENINGITIS SEROSA CIRCUMSCRIPTA

Although the earliest description of this condition is attributed usually to Schlesinger, who, in 1898, described the post-mortem findings of a case of cord compression due to a localised hydrops of the meninges, it had been doubtless recognised long before this date For there was published in Bonn in 1840 a thesis by one P Schmitz entitled "De meningitide spinali quam vocant circumscriptam" I regret that a search of the libraries of London, Edinburgh, and Cambridge has been unproductive, and therefore, I cannot give you further details of his article. But the title clearly indicates that his subject must have borne a close relationship to the one I am now presenting.

I think it will simplify matters if I exclude at once certain conditions, which, while often associated with a circumscribed serous meningitis, do not form any part of my subject

1 —*Extradural processes* —(1) Infective or inflammatory disease of the vertebral column—e g, Pott's disease, acute or chronic osteomyelitis, syphilis, typhoid spine, actinomycosis (2) Extradural tumours

2 *Intradural processes* —(1) Intradural extramedullary tumours (2) Intramedullary tumours

The condition I am dealing with is characterised clinically by the progressive evolution of a compression paraplegia, and pathologically by meningeal adhesions, varying from fine discrete strands of translucent membrane, arising from the arachnoid and passing across the space between the dura and the cord, to adherent processes more or less completely surrounding the cord, either fixing the latter or dragging it laterally, and matting the roots The cerebro-spinal fluid may be held up by a transverse partition formed by these processes, or retained in cyst formations of varying size. While the circumscribed location of the lesion gives to it its characteristic clinical picture, the adhesions and proliferation of the arachnoid are more or less diffuse, both above and below the neurological level, but the process remains harmless unless it produces compression of the cord

Reference should be made to a similar pathological condition affecting the posterior fossa of the skull not as yet commonly recognised While some cases are undoubtedly due to an infective process arising from otitis media, many others have an obscure ætiological origin These cases may simulate cerebellar or cervico-medullary tumour. Horrax describes this condition as "cisternal arachnoiditis" The localisation of this process to the posterior fossa may even account for cases of hydrocephalus of obscure origin.

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* The first Lettsomian Lecture appeared in THE LANCET of Feb 26th, 1927.

The Spinal Arachnoid Membrane

Let me here recall a few points in the anatomy of the spinal arachnoid membrane The arachnoid is a thin delicate non-vascular areolar tissue membrane lying outside the pia and connected with it by slender filaments of trabecular connective tissue Above, it is continuous with the cerebral arachnoid, and on either side it is continued on the various spinal nerves to form a sheath for them The outer surface of the arachnoid is in contact with the inner surface of the dura, both of which are lined by a layer of endothelial cells The interval between them, merely a potential space, constitutes the subdural space and contains a small amount of fluid of the nature of lymph The subdural and subarachnoid spaces nowhere connect with one another The inner surface of the arachnoid is separated from the pia by a considerable interval, which is called the subarachnoid space This space is largest at the lowest part of the spinal canal where it encloses the nerves forming the cauda equina

Superiorly, it is continuous with the cranial subarachnoid space, and is brought into communication with the general ventricular cavity of the brain by means of the openings in the pia mater in the roof of the fourth ventricle The spinal subarachnoid space is filled by cerebro-spinal fluid sufficient in amount to expand the arachnoid membrane, so as to completely fill up the whole of the space included in the dura mater The subarachnoid space is occupied by subarachnoid tissue, trabeculæ of delicate connective tissue, connecting the pia mater with the arachnoid, and, in addition, is partially subdivided by a longitudinal membranous partition, the septum posticum, which connects the pia and arachnoid opposite the posterior median fissure This partition is incomplete and cribriform in structure, formed by interlacing bundles of white fibrous tissue The space is also partially divided on either side into an anterior and posterior compartment by the ligamenta denticulata

In structure the arachnoid membrane consists of distinct riband-like bundles of fine fibrous tissue, interlaced into one another, for the most part running in a longitudinal direction Several layers of this tissue, arranged in a complex way, constitute the arachnoid membrane proper The subarachnoid trabeculæ consist of fine fibrillar tissue, each of which is surrounded by a delicate nucleated sheath The whole constitutes a typical areolar connective tissue, interrupted at numerous points and covered by a continuous layer of endothelial cells The subarachnoid space contains numerous blood-vessels some of which are free and others attached to the arachnoid Their adventitia is covered by endothelium, hence the subarachnoid space would seem to assume the character of a perivascular space

Reactions of Membranes to Injury.

Let us now consider what are the reactions to injury, mechanical or chemical, of the membranes of the cord, as throwing light upon the formation of the adhesions so characteristic of the condition of meningitis serosa circumscripta Very valuable and suggestive experimental work has been done on this subject by Sayad, Lear, and Harvey working together They first investigated the reaction of the dura to injury with an uninjured arachnoid, and, secondly, the reaction of the injured arachnoid with an uninjured dura. The former experiment consisted in removing a circular piece of the dura through a trephine opening in the temporal region, every care being taken to avoid injuring the pia arachnoid lying beneath it They found that the operative defect is filled at once by blood-clot, which on its inner face is lightly adherent to the arachnoid and on its outer intimately adherent to the exposed temporal muscle The process of organisation of the clot begins at once and takes place in much the same way as elsewhere in the body There is an immediate invasion of phagocytes, followed almost at once by wandering and polyblastic cells and then in time by fibroblasts These all appear to come in large part from the overlying temporal muscle and to be evenly distributed throughout the clot Those reaching the inner surface adjacent to the arachnoid membrane become arranged in a plane tangential to that surface and very soon there is a distinct skeletal arrangement of the cells corresponding to the architecture of the dura A little later certain of these cells are arranging themselves along the inner face of the blood-clot in contact with the arachnoid, forming a limiting membrane resembling the endothelial lining of the normal dura Sayad and Harvey think that it is highly probable that the endothelial or endothelial-like lining seen at this early period is derived from cells coming from the muscle side of the clot and not by an ingrowth of endothelium from the cut edge of the dura This surface becomes complete at the end of a week and at this time the clot loses its fibrinous adhesions to the arachnoid From this time on the process is largely one of growth and condensation of connective tissue behind the lining cells

It is apparent, therefore, that healing of the dural defect takes place without the ingrowth of any fibroblasts into the arachnoid, so essential for the formation of adhesions This impregnability of the arachnoid surface to the reaction of repair in the dura prevents the formation of adhesions, and acts as a mould for the reconstruction of the dura.

As a corollary, it is of interest to see what happens in the healing of an injury to the arachnoid when the site of its injury is covered by normal dura Lear and Harvey investigated this problem in a series of experiments A dural flap was turned down with strict precautions against injuring the inner surface of the dura and the arachnoid The pia arachnoid, well away from the line of dural incision, was subjected to a small sharply localised area of injury As a result, it was found that where there was an injury to the pia-arachnoid, even though the overlying dura was uninjured, dense adhesions between all three layers of the meninges were formed These adhesions formed early, became denser with time, and persisted In order to exclude the possibility of the dural reaction being due to blood between it and the arachnoid, experiments were conducted in which blood was left between the dura and uninjured arachnoid As might be expected, no adhesions were formed In other words, blood in the presence of an intact arachnoid does not produce adhesions Hence, a necessary premise to the formation of adhesions between the dura and arachnoid is injury to the latter, and the essential point would appear to be an injury to the outer cells of the arachnoid Over the spinal cord, where the pia and arachnoid are widely separated from each other, such injury would probably not involve the pia, which might well act as another limiting membrane Over the cerebral cortex, on the other hand, any reparative process in the arachnoid will probably stimulate a similar reaction in the pia, and, if sufficiently severe, in the cortex itself

Why do the dura and arachnoid react in such different fashions when healing? Lear and Harvey suggest as an explanation, and they receive support from Clarke and from Lewis, that the dura is not lined with true endothelium, but rather by cells which have undergone a certain metaplasia from mesoblatic elements, in order to serve the same purpose The lining cells of the dura, therefore, are less stable and enter readily into any adjacent inflammatory reaction The lining cells of the arachnoid, however, are more highly differentiated than those of the dura and are, therefore, more stable in character Thus it is that the inner surface of the dura does not act as a limiting membrane in the presence of an attempted repair in the underlying arachnoid, but, on the contrary, enters intimately into the process, with the result that the arachnoid, when injured, becomes adherent to the dura, and healing takes place with adhesions between them

We may, I think, conclude from the foregoing findings, that in order to have adhesions it is not necessary to have any injury to the dura whatever, but that damage to the lining cells of the arachnoid alone will result in the formation of adhesions Moreover, the work of Esseck indicates that a relatively minor injury is sufficient to induce a cellular reaction in the interstices of the arachnoid Ayer has shown, too, that, if such reaction is intensified, the actual destruction of lining cells may take place both within the interstices and on the surface of the arachnoid sufficient to lead to cicatrisation and the formation of adhesions The application of what has gone before to our subject under discussion—viz, the pathogeny of meningitis serosa circumscripta, is this that injuries, sometimes exceedingly slight, minimal birth injuries, mild attacks of serous meningitis, even the meningeal reactions that occur at the onset of many infectious diseases, may of themselves be sufficient to cause enough damage to the arachnoid to lead to adhesions, which later in life may be of clinical importance

ÆTIOLOGY. MENINGITIS SEROSA CIRCUMSCRIPTA

I think there can be no question that previous infections of the meninges, either primary or secondary, may be followed by a serous meningitis Such undoubtedly occurs, as already mentioned, in the posterior fossa *secondary to otitis media* This would explain the diffuseness of the condition so often found in the cord. Nor is it difficult to imagine that, in a more or less mild diffuse condition, the brunt of the reaction may have fallen upon one particular section of the arachnoid more than another, giving rise to a circumscribed lesion, more severe than elsewhere and the only one to make its presence known clinically It may be remarked here that the majority of cases show a lower cervical or upper dorsal localisation. There is a patient now in the National Hospital in the service of Dr Walshe, and upon whom I have operated, whose symptoms followed five months after an attack of epidemic cerebro-spinal meningitis Oppenheim also refers to this as a cause Bouché reports a case following upon an attack of typhoid three years previously, during which the patient had had symptoms of a meningitis Horrax states with regard to serous meningitis localised in the posterior fossa that influenza and encephalitis are possible causes, there being evidence in favour of the latter Flatau, Jacobsohn, and Minor regard meningitis serosa circumscripta as a "chronic inflammatory condition," but do not commit themselves further. Horsley invoked syphilis and gonorrhœa as the chief ætiological factor I had the privilege of assisting him or of seeing the majority of his cases, and that they were not all cases of meningitis serosa circumscripta, as we now understand it, is clear from his own description. He describes a "shrunken cord, the seat of a sclerogliosis," and refers only in passing to meningeal adhesions Sachs and Glaser have classified their experiences of cases showing symptoms of a compression paraplegia with a definite sensory level, which were operated upon, as follows —

1 Those with normal looking cord and meninges
2 Those with normal cord but with pathological changes in the meninges.
3 Those with pathological cord and normal meninges
4 Those with pathological cord and meninges.

They describe the appearances of the cord in Group 3 as "small and white, with the vessels small and diminished in number," the so-called "cadaveric cord" Such was the condition in many of Horsley's cases Oppenheim thought too that at least in some of these cases, there is a combination of intramedullary lesion with the serous meningitis Bruns was strongly of the opinion that an idiopathic condition exists, apart from any disease of the spine, meninges, or cord itself

Traumatic Conditions.

The most important contributions concerning the ætiology of this disease in recent years refer to trauma as an ætiological factor The importance of this, especially from a medico-legal point of view, cannot be exaggerated. Although cases had been reported by Krause, Weisenberg, and Muller, Bruns and others, in which a history of trauma had been obtained, it was not considered of any importance as a causative factor, and Horsley rejected it altogether Muller, of Marburg, refers also to the operative trauma incident to the successful removal of spinal tumours as a cause of meningitis serosa circumscripta coming on slowly but progressively some years afterwards

When one considers head injuries, in which so often localised adhesions of the meninges occur as an after-result, it is not difficult to conceive a like result occurring in the spinal canal following upon trauma Gerstmann, in reporting six cases and describing them fully, rejects infection and primary disease of the spinal cord as ætiological factors, and regards trauma as the most common one He maintains that a torsion or jarring of the vertebral column may cause a slight damage to the meninges, with resulting adhesions, which tend to be progressive in character Probably the most important contribution to the subject is that of Mauss and Kruger They found in 54 laminectomies for war wounds, 23 cases of meningitis serosa *circumscripta* In all the origin was undoubtedly traumatic In 14 there was direct injury to the spine, but in the remaining nine the injury was remote from the spine. In these cases they are of opinion that a commotion of the spinal column with its protected spinal cord, whether due to direct impact upon the spine or transmitted thereto through other parts of the skeleton is *the* ætiological factor. They suggest also that a mere traction of the plexuses may be a sufficient cause They are of opinion that in the majority of cases the intradural process is not inflammatory, as such histological investigations as were carried out showed no evidence of such a process in the strands of arachnoid They suggest, however, that the process begins as a pachymeningitis or peripachymeningitis following upon a peridural hæmorrhage If we are to accept the conclusions formulated by Sayad, Lear, and Harvey, this alone would be insufficient and we most postulate damage to the cells of the arachnoid as well However produced, we must, I think, regard trauma as a very important ætiological factor in the production of the disease

Although offering no new evidence as to the ætiology of the condition, Stookey would explain the mechanism causing the disturbances in the cord as follows With each respiratory excursion there is a dorsoventral movement of the spinal cord *throughout* its length of approximately 5 mm in each direction, greater in the cervical and upper dorsal regions If adherent bands are present, the cord is fixed at the points of attachment, while above and below it moves normally. Thus with each respiration angulation at the fixed segment occurs, which when constant and continued over a long period of time induces disturbances in cord conduction He extends this theory to explain the more frequent occurrence of the localising lesion in the cervical and upper dorsal regions, where the respiratory excursions of the cord are greatest He suggests also that, owing to the interference with the normal mobility of the cord by meningitis serosa circumscripta, slight injuries may be productive of a greater degree of traumatism to it than would have otherwise been the case This is a very fascinating theory but one which is obviously open to severe criticism

Age and Duration

Meningitis serosa circumscripta occurs most frequently in the fifth and sixth decades of life, but as Bruns had a case 16 years of age and my oldest was a man of 70 it obviously may occur at any age in *adult life*

Though Stookey lays great stress upon the duration of the disease as a factor in differential diagnosis—50 per cent of his cases having had a course of more than nine years—it is possible. however, to attach too much importance to the time element Three of my own cases were of four, six, and nine months respectively, though another was of nine years' duration It may be said in general terms that the onset of the disease is usually slow and its development protracted.

SYMPTOMATOLOGY

In general terms it may be said that the symptoms of meningitis serosa circumscripta are those of an extramedullary spinal tumour. But there are certain differences which make it possible to suspect or even to diagnose the former condition One of these is the variability of the symptoms observed on examination at short intervals, which is the most characteristic feature of the clinical picture. This concerns pain, motor, sensory and sympathetic irritation phenomena, and the reflexes

Unilaterality of symptoms marks the disease in its early stages On the sensory side subjective symptoms predominate Pains, paræsthesiæ, and hyperæsthesia are prominent symptoms Pain is widespread, diffuse, and indeterminate in distribution, not localised, and referred to distant skin areas Hyperæsthesia is generally extended to a whole limb, with "band" sensations at ankle, knee, abdomen, or neck A uniradicular zone of hyperæsthesia at the upper level of the lesion is very rare The pain and hyperæsthesia may be very intense and disabling apart from any loss of power Sensory loss is often not complete and may present variable limits from day to day It affects all modes of cutaneous sensibility equally in degree and extent Stookey found marked involvement of vibratory and muscle, joint and tendon sense, with dissociation at times of these two varieties A Brown-Séquard syndrome is frequently seen in this condition, and is characterised by slowness of progression and its almost daily variability. Further, also, by the fact that the sensory changes in the upper zones are more profound than those in distal zones For example, one may find a complete loss over the trunk, while in the lower limbs only a partial loss may be present This is a point that Collier has frequently emphasised.

On examination motor disturbances are more marked in most instances than sensory. Weakness of limbs at first limited to one side, then later involving the other, followed by paraplegia, or even quadraplegia Irritative motor phenomena, multiradicular in type, may be present In Mauss and Kruger's cases many showed a tendency to spontaneous or readily elicited reflex movements, a source of great discomfort to the patients, especially at night Widespread twitching and fibrillation of muscles within the affected area also occurred. Contrary to Horsley and other observers, they found vasomotor, secretory, and trophic disturbances fairly common These included hypothermia, cyanosis, redness, swelling, hyperidrosis, hyperkeratosis, and anomalies of the nails Disturbances of bladder and rectum are either absent or occur rather late in the evolution of the disease. Dysuria and urgency of micturition are more characteristic than incontinence, which, when present, tends to be transient

Mauss and Kruger report in cervical lesions, the sudden appearance of bulbar symptoms, dyspnœa, nystagmus, facial palsy, and limitation of head movements, all of which they regard as the strongest indications for operation, and which were permanently abolished thereby Vertebral tenderness has been found in some cases, but when present bore no definite relation to the level of the lesion

The Cerebro-spinal Fluid.

The cerebro-spinal fluid in meningitis serosa circumscripta varies as it does in spinal tumour, depending upon the completeness of the block The absence of any increase in the protein content and of xanthochromia cannot be invoked, as Stookey claims, to differentiate this condition from spinal tumour He says. "A prolonged history, a positive cerebro-spinal fluid manometer result, and a normal total protein content are the most important points in the differential diagnosis from spinal cord tumour" Analysis of the cases reported in the literature show that many had an increased protein content, varying from "slight" to "marked"

Cases of my own vary from a normal protein content to 0 15 per cent, and two had xanthochromia and one showed coagulation. My colleague, Sargent, has had cases showing a variation from normal to 0·2 per cent, two with xanthochromia, and one showed a coagulum. Sicard and Laplante report an increase of protein even as high as 0 55 per cent, while Bouché speaks of a "marked" increase in one of his cases.

Differential Diagnosis

The conditions from which it is most difficult to diagnose meningitis serosa circumscripta are syringomyelia and intra- and extra-medullary tumour Syringomyelia may be excluded by the presence of a true dissociated anæsthesia, joint affections, and vertebral deformities Intramedullary tumours show a difference in levels for temperature and pain, and tend to show an upward progression of the sensory level Also the saddle area—i e, that supplied by the lower sacral segments—frequently shows a relatively slight sensory disturbance An extramedullary or root tumour is characterised by the localised severe root pain associated with complete loss over that segment and a stationary upper level In circumscribed meningitis the profoundness and character of the sensory disturbance at the upper level are more widespread than in spinal tumour Further, the pain frequently affects more than one root and may be bilateral, thus giving the diffuse character to the pain referred to so often by various observers Cases may show a broad band of hypoæsthesia over the trunk, while in the legs no sensory disturbance is to be made out Yet a change in the reflex activity points to interference with the spinal tracts The condition may be differentiated from plexus lesions by the fact that the symptomatology in the latter condition can be explained by a purely extraspinal lesion—in other words, there is a complete absence of pyramidal tract involvement and bladder disturbance

In general terms it may be said that the most outstanding features in meningitis serosa circumscripta are the variability of the symptoms, the diffuseness of the pain, and the preponderance of subjective sensory over motor phenomena in the initial stage of the disease, while at a later stage the motor disturbances are more easily demonstrated than the sensory As previously shown, examination of the cerebro-spinal fluid gives no assistance in diagnosis owing to the variability of the findings

TREATMENT.

The treatment of meningitis serosa circumscripta is purely surgical The aim of the operation is the division and removal of the proliferated and adherent arachnoid, the freeing of the roots and the cord within the theca, and the re-establishment of a free cerebro-spinal fluid circulation The more definitely localised the lesion the more easily and the more completely can these results be attained Failure to secure complete success is due probably to the widespread nature of the condition One is not dealing therefore with a meningitis serosa circumscripta but with a meningitis serosa diffusa Unfortunately, there is no means of differentiating between these two types prior to operation.

The indications for operation are the same as for spinal tumour—viz, stationary symptoms not improved by other treatment, or progressive symptoms, in either case where a definite level has been established An immediate operation may be called for in cervical cases with the onset of bulbar symptoms The operative findings are always the same within the fairly wide limits of the pathological process The theca is distended and shows no pulsation The cerebro-spinal fluid is always under tension and on opening the dura either it escapes in a strong stream or its egress is interrupted by the *œdematous* arachnoid protruding into the incision in the form of a violet-grey shiny cyst On the escape of the fluid pulsation usually returns, and this must be regarded as strong presumptive evidence of the absence of a tumour. On widely opening the arachnoid localised cyst formation may be found with evidence of pressure on the cord, the roots may be encased in thickened arachnoid dragging upon and distorting the cord laterally, or the subarachnoid space may be completely obliterated at the site of the lesion.

Contrary to my own experience Mauss and Krüger describe a remarkable vascularity of the membranous processes. I have frequently seen tortuosity and engorgement of the veins and pallor of the cord, both suggestive of venous obstruction and interference with the vascular supply of the cord. The freeing of the cord and removal of the adherent processes produce at once a return to more normal vascular appearances, with disappearance of the venous distension and reappearance of the normal colour. Whatever the condition, it is dealt with *secundum artem* throughout the length of the operative exposure. It is well not to suture the dura on closing the wound with a view to preventing the formation of new adhesions. The muscles are closed in layers by interrupted catgut sutures.

The results of operations are in some cases brilliantly successful. The more localised the condition and the earlier the stage of the proliferative process the better chance of this result. Symptoms, even in cases primarily cured, may return in after years from a progression of the process at or about the same level or at one remote from it. Such has been my experience in one case. The widely diffuse process, involving the greater part of the cord or the cord at different and remote levels, is beyond the reach of operative approach.

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CARBOHYDRATE TOLERANCE IN OVER-WEIGHT AND OBESITY.

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THE following observations are based on a survey of 121 cases of overweight and obesity collected from the records of Duff House, Banff, and Ruthin Castle. In ascertaining the degree of overweight of a subject, reference has been made to tables[1] giving the average weights for all ages and heights. It is admitted that there must be considerable latitude of opinion as to what constitutes an average weight, and, whereas reliance has been more or less arbitrarily placed on these tables, yet no case which was only slightly above the average was included, but only those which were distinct, and who themselves, knowing what their average weight was, had admitted their obese condition and presented themselves for treatment for this cause alone, or on account of the glycosuria which in a few cases accompanied it. In this series the degree of overweight varied from 14 lb. to as much as 130 lb. above the average.

In the use of the terms overweight and obesity no difference other than one of degree is intended. Strouse and Dye,[2] however, draw a distinction between the terms, reserving overweight for those cases which result from overfeeding and sedentary habits. Obesity, though often the sequel of the same causes, in their view, may also arise in some instances without any excessive food intake or lessened expenditure of energy.

The cases in this series were all adults, 80 being within the age period of 40–60. In childhood and adolescence obesity is often associated with dysfunction of the endocrine glands, particularly the pituitary, and the same may be true to a lesser extent in adult life, when obesity is more frequently the result of extrinsic causes, such as overeating, combined with lack of adequate exercise. The scope of this paper is directed towards this class, so far as possible, cases of pituitary disease being excluded by clinical and laboratory means and by X ray examination of the skull. It is, of course, recognised that in many cases it is difficult to separate the exogenous types of obesity from the endogenous.

Occurrence of Glycosuria.—Sugar was present in the urine of 17 cases out of the 121, the amount varying from a trace to 22 g in the 24 hours. Acidosis, as judged by the presence of acetone and diacetic acid in the urine, was absent in almost all, and when present was found in traces only. These cases were regarded clinically as mild diabetics. The remaining 104 showed no outward sign of a diabetic tendency.

Sugar-tolerance Tests.

The majority were treated before the blood-sugar curve was introduced as a means of testing carbohydrate tolerance. In 20 recent cases, however, such tests have been carried out. The technique employed was as follows: 60 g. of powdered cane sugar were given by the mouth at 9 A.M. on a fasting stomach, the last meal being about 7.30 on the preceding night. 0.2 c.cm. of blood was obtained by pricking the finger, before taking the sugar and at frequent intervals for three hours after. The bladder was emptied before the test and again at one, two, and three hours after. For the blood-sugar estimations the method of MacLean was used.

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Before proceeding to the consideration of abnormal results, it would be well to enunciate what normal, or standard, they are to be compared with MacLean and de Wesselow[3, 4] place the maximum rise of blood-sugar in health, after the ingestion of 50 g. of glucose, at 0 16–0 18 per cent, and require it to have returned to normal in one and a half hours In infancy and up to the age of 3 years as shown by Spence,[5] the blood-sugar rises but slightly after a dose of sugar, and there is evidence to show that sugar tolerance decreases with advance of years R Hale-White and W W. Payne[6] conclude that the fasting blood-sugar level lies below 0 12 per cent for all ages They point out that over the age of 70 the maximum rise in health may be up to 0 22 per cent, and suggest that for subjects under 30 the time taken to regain the fasting level should be extended *to two hours and for those over 30 to three* hours C D. Shapland,[7] using 60 g of cane sugar, has found, in considering sugar-tolerance tests from ten healthy adults aged 20–40, that starting from a fasting level of 0 12 per cent a maximum of 0 16–0 20 per cent was obtained, a fair average being 0 17 per cent, and thereafter the resting level was regained in one and a *half hours* *In ten healthy adults aged* 50–60 he found the average fasting level to be 0 13 per cent, the maximum blood-sugar 0 21 per cent, and the fall to resting level delayed to two hours

For the purposes of this paper, a maximum rise of blood-sugar to 0 18 per cent will be taken to represent the normal In the accompanying diagrams of the results of sugar-tolerance tests on obese subjects, blood-sugar figures above this are shaded in black, to indicate clearly the area of hyperglycæmia in each case and to serve in comparing them with each other The main features of the 20 cases are summarised in the tables shown. They are divided into two groups, group A, consisting of 12 cases of simple obesity whose daily urine was normal, and group B, consisting of 8 cases of obesity complicated by glycosuria—i.e, mild diabetics

GROUP A —*12 Cases Simple Obesity*

Case	Sex and age	Duration of obesity	Degree of over-weight	Daily urine	After ingestion 60 g sugar			
					Fasting blood-sugar	Max rise of B S	Return to fasting level in	Urine during test
		yrs	lbs		%	%	hrs	
a	F 35	4	+62	N	0 11	0 16	1½	N
b	M 65	8	+75	"	0 11	0 18	1½	"
c	F 53	12	+50	"	0 14	0 18	1½	"
d	F 46	5	+67	"	0 13	0 20	2	"
e	M 36	8	+113	"	0 11	0 17	2½	"
f	M 54	20	+140	"	0 13	0 21	2½	"
g	F 50	5	+42	"	0 15	0 21	2	"
h	F 22	5	+120	"	0 13	0 20	Over 3	"
i	F 36	8	+60	"	0 14	0 24	2½	Tr sug
j	M 49	10	+125	"	0 15	0 25	Over 3	N
k	M 46	5	+55	"	0 13	0 27	Over 3	Tr sug
l	F 64	20	+80	"	0 18	0 30	2½	"
GROUP B —*8 Cases Obesity + Glycosuria*								
m	M 54	15	+48	2 g sug in 24 hrs	0 13	0 26	2½	+ sug
n	F 42	10–15	+39	Tr sug	0 11	0 26	Over 3	"
o	M 60	10–15	+43	14 g sug in 24 hrs	0 16	0 26	Over 3	"
p	M 46	10–15	+29	15 g sug in 24 hrs	0 11	0 27	Over 3	"
q	M 44	10	+60	Tr sug	0 17	0 29	3	"
r	F 58	6–10	+67	2 g sug in 24 hrs	0 16	0 33	Over 3	"
s	F 40	12–15	+40	4 g sug in 24 hrs	0 16	0 30	Over 3	"
t	F 43	20	+36	22 g sug in 24 hrs	0 22	0 36	Over 3	"

Sugar Tolerance —Cases *a* to *e*, normal, *f*, *g*, slightly decreased, *h* to *n*, moderately decreased, *o* to *t*, much decreased. N, normal Tr sug, trace sugar

Features of Sugar-tolerance Tests in Groups A and B

(A) *Simple Obesity* —Sugar was found in the urine of three cases only of the 12 during the test The fasting blood-sugar level was above 0 12 per cent in nine cases, the maximum height above 0 20 per cent in six, and the return to fasting level delayed to two and a half hours or more in seven

Five of the cases showed a normal sugar tolerance, whereas of the remaining seven, two displayed a slight departure from the normal and five a moderate hyperglycæmia, evidence of decreased sugar tolerance This is graphically represented in the diagrams Figs 1, 2, 3, 4, 5, the shaded areas indicating the extent of the hyperglycæmia

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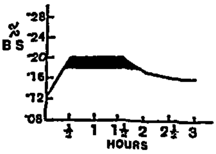

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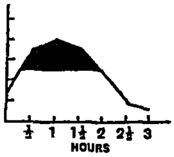

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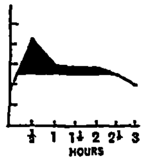

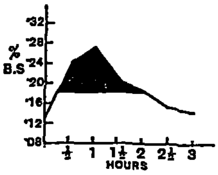

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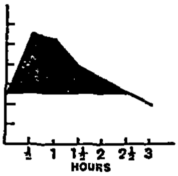

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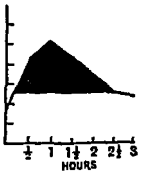

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(B) *Obesity and Glycosuria* —Abundant sugar occurred in the urine of all subjects during the test From the table again, the fasting blood-sugar is seen to be above 0 12 per cent in six cases, the maximum height above 0 20 per cent in all eight, and the return to fasting level delayed to over three hours in six out of eight There is less discrepancy between the individual members of this group than in the previous group A Here not a proportion but all display a definite diabetic type Fig 6, representing a composite curve of the eight cases, is of the diabetic type, as shown by the extensive shaded area of hyperglycæmia provoked by the dose of sugar

These results may now be summarised —

Type	Fasting level of blood-sugar	Maximum rise after 60 g sugar	Return to fasting level in	Urine during test
Normal	0 09–0 12 %	0 17–0 20 %	2 hr	Normal
Obesity (Group A) (12 cases)	Above 0 12 % in 9 out of 12	Above 0 20 % in 6 out of 12	Delayed to 2½ hr or more in *7 out of 12*	Contained sugar in 3 out of 12
Obese *diabetic* (Group B) (8 cases)	Above 0 12 % *in 6 out* of 8	Above 0 20 % *in all*	Delayed to *2½ hr or* more in all	Contained *sugar in* all

Bearing of Results on Relation of Obesity to Diabetes

The association *of obesity and* diabetes is well known Diabetics frequently give a *history of over*-weight preceding the onset of the disease. In an *analysis of 1063 cases of* diabetes, Joslin[8] states that obesity preceded the onset in 40 per cent Root and Miles[9] place the percentage lower, at 20 per cent In this series, examination of the urine showed glycosuria in but 14 per cent *or 17 out of 121 cases* The position in relation *to* diabetes of the remaining 104 remains in doubt until sugar-tolerance tests are applied.

Sugar tolerance in adolescent cases of pituitary disease displaying obesity has been studied by Gardiner-Hill, Jones, and *Forest-Smith*[10] These workers found in the early stage *of the condition* a decrease of carbohydrate *tolerance*, in the later an increase The variety of obesity under discussion here—i e, that of adult life arising from extrinsic causes—is very worthy of consideration, as it is undoubtedly this type which is associated with the development of diabetes It is only, therefore, what might be expected, when in many cases sugar-tolerance tests reveal a well marked diabetic tendency or decreased ability to deal with carbohydrate. No hard-and-fast rule need be drawn between what is a normal and what is an abnormal curve If the 20 cases on which sugar tolerance tests were performed, are placed in the order of the degree of hyperglycæmia, they are seen to pass by gradual stages from the undoubtedly normal to the as surely diabetic type Labbé and Boulin[11], giving 50 g of glucose to obese subjects, have demonstrated similar results and supported the view long held that a certain proportion of the obese are in danger of becoming diabetic

From a survey of the varying results obtained by examination of the 20 cases, it is obvious that the diabetic tendency is not present in every case, and varies in degree when it is present It is likely, therefore, that there are factors at work which render one case more likely to develop diabetes than another These may now be discussed

Possible Factors Disposing to a Diabetic Tendency in the Obese

1 *Effect of Reduction of Weight on Sugar Tolerance* —It is a general observation that in diabetic subjects who are over weight, reduction of weight, even if only of a few pounds, leads to improvement of sugar tolerance. This is, of course, the foundation of the fasting treatment of diabetes, the reduction of food sparing the pancreas If the decreased sugar tolerance shown by many of the above cases is in any way connected with their obesity, a similar result should follow reduction of their weight In Case *h* (Fig 7), whose weight was 17 st 2 lb in 1925, a sugar-tolerance test gave a curve tending to the diabetic type Under dietetic treatment weight was reduced to 13 st 13 lb (loss of 3 st approximately) A sugar-tolerance test was again performed nine months later under the same conditions and by the same observers, and gave a normal type of curve (Figs 7 and 8) This could not be due to immediate effects of the diet, and it would seem that, in this case, permanent reduction of weight had benefited sugar tolerance In another case seen since, and not included in the above, reduction of weight resulted in improved tolerance It seems reasonable to suppose, therefore, that the obesity is directly connected with the decreased sugar tolerance shown by many of these cases

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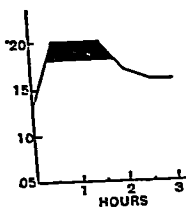

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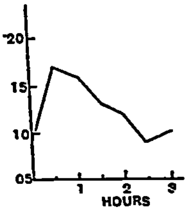

2 *Degree of Overweight* —Joslin[8] has said that diabetes is the penalty of obesity, and that the greater the obesity the more likely is nature to enforce it It seems indeed likely that the greater the degree of overweight the more would the sugar-tolerance test show a departure from the normal The experience in this series is not, however, in agreement with this view. There appears to be no relationship between the extent of the obesity and diabetic tendency If the sugar-tolerance curves of the 20 cases are placed in their ascending order of overweight, no corresponding uniform decrease in sugar tolerance is seen One case, 110 lb over average weight, showed only a slight departure from the normal, whereas another, 55 lb over the average (Case *k*, Fig 3), shows a diabetic type of curve

3 *Age* —The effect of age on sugar tolerance has already been referred to, and on this ground it might well be argued that the type of curve seen in the obesity of middle life may not be due to the obesity, but to the age of the patient Figs 1, 2, 3, 4, 5 are curves which cannot be explained on grounds of age alone Furthermore, the workers above mentioned[6] have not stated whether their subjects were over weight or not, but merely that they were healthy individuals

4 *Hypertension and Hyperglycæmia* —Mohler[12] describes cases in middle life showing the syndrome of hypertension, hyperglycæmia, obesity, and arteriosclerosis, obesity being said to favour the development of arterio-sclerosis and high blood pressure In only three of the 20 cases was the systolic blood pressure above 160 mm. of mercury, so that the question whether high blood pressure and not obesity has to do with decreased sugar tolerance does not arise in this series.

5 *Duration of Obesity.*—Referring back to the tables, groups A and B, the duration of the obesity is stated for each case In nine it is under 10 years and in 11 cases of 10 years' duration or more It is interesting to compare the results of sugar-tolerance tests for these two periods of time —

Sugar tolerance	Under ten years' duration (9 cases)	Ten years' duration or over (11 cases)
Normal	4	1
Slightly decreased	1	1
Moderately decreased	4	9

The periods of time stated are, of course, approximate only, and the total number of cases small to draw conclusions from, but the relatively large number of diabetic curves obtained from cases of obesity of long-standing is noteworthy

More evidence is found in Case *m* (Fig 6). This patient was first admitted to Duff House in 1916 His weight then was 16 st, height 6 ft There was a trace of sugar in the urine In 1921 a sugar-tolerance test gave the result shown in Fig. 9 He was then passing 2 g sugar in the 24 hours No serious effort was made on the part of the patient to reduce weight which fluctuated between 16 and 17 st, until readmission in 1926, when he was found to be passing 58 g. of sugar in the 24 hours on the same diet as in 1921. A sugar-tolerance test was repeated and gave the results shown in Fig. 10 It is obvious that a considerable further decrease in sugar tolerance has taken place since 1921, and this cannot be attributed entirely to his increase of age from 54 to 60 It would seem reasonable to suppose, therefore, that it is the length of time the obesity has continued unchecked which influences the tendency to diabetes It is of interest to note that the French observers already mentioned favour this view.

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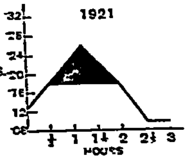

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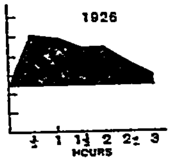

Ætiology of Decreased Sugar Tolerance in Obesity

If we admit that many cases of obesity, particularly those of long standing, display a decreased carbohydrate tolerance, it remains to discuss the possible genesis of the condition In the normal adult, the body-weight undergoes but slight fluctuation; the process of anabolism, resulting from the intake of foodstuffs more or less balancing catabolism from the expenditure of energy.

In the type of obese subject under consideration, conditions favouring excessive anabolism and interference with this balance are present The simplest example is that of the person who lives too well and takes inadequate exercise This process once begun will continue, for the more abundant and rich the food the less will be the desire for physical exercise Further, the stouter and more spherical the subject, the less food per kilogramme is required for body purposes A time will come when the individual limit of storage is reached, and then, or in all probability before then, the storage mechanism will default, giving rise to excessive accumulation of sugar in the blood, with leakage into the urine This stage is represented by the "fat" diabetes class The quantity of sugar in the urine of these cases was never great, and urine rarely showed indications of the incomplete combustion of fat in the presence of acetone bodies It would, therefore, seem likely that the internal pancreatic secretion of these cases was not greatly affected

During the years of gradual increase of weight the pancreas has been called upon to deal with excessive amounts of carbohydrate As shown by Allen,[13] a condition of hyperglycæmia is detrimental to the internal secretory tissue of the pancreas As a result some deterioration of the insulin secretion might be expected Individual susceptibility may explain why a few cases proceed to a further stage with rapid wasting and signs of severe diabetes The majority of obese subjects, however, apparently remain at this stage, revealing their diabetic tendency only when examined by sugar-tolerance tests A small number pass to the "fat" diabetes type and a few only to severe diabetes

Summary

1 The above observations are based on a survey of 121 cases of obesity, occurring in adult life and arising from extrinsic causes, such as overeating, lack of adequate exercise, or a combination of both. So far as possible cases of endocrine disturbance have been excluded

2 An attempt has been made to study carbohydrate tolerance in this type of obesity and to inquire into the relationship which is known to exist between obesity and diabetes

3. Glycosuria was present in 17 cases only, or in 14 per cent The remaining 104 were sugar free, and showed no outward sign of a diabetic tendency.

4 Sugar-tolerance tests were performed in 20 instances, including eight of those who were known to have glycosuria From a review of these it would appear that, though some individuals much over weight have a normal sugar tolerance, many display a partial inability to deal with carbohydrate, and especially those who are known to have glycosuria

5 In those who show decreased sugar tolerance, an improvement in tolerance, or even a return to normal, may take place if weight is reduced

6 There is evidence to prove that the decreased carbohydrate tolerance is dependent on the length of time the obesity has existed unchecked

In conclusion I desire to express my sincere thanks to Dr E I Spriggs for much valuable help and criticism and to my colleagues, A J. Leigh, J S Jeffery, and T J. Dobie, by whom the blood-sugar estimations were carried out in the Ruthin Castle laboratories

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REMOVAL OF THE METATARSAL HEAD

FOR HALLUX VALGUS AND HALLUX RIGIDUS *

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I HAVE recently examined more than 50 patients operated upon for hallux valgus or hallux rigidus in the orthopædic department at St Thomas's Hospital during the five-year period 1921 to 1925

The operation is a standard one A straight dorsal skin incision is used The head of the metatarsal is excised at the level of the neck, thus removing half an inch or more of the bone A plain vertical surface of raw bone is left; protruding spikes of bone are removed, and the edges are bevelled The phalanx is not touched. The sesamoids are left intact, and no tendons are interfered with As a rule the bursa is not dissected out and removed No material is interposed between the raw end of the matatarsal and the phalanx No splint is used afterwards Ten days after the operation the stitches are taken out, and the patient gets up in a large sized shoe He is treated daily for a week or so with faradic foot baths, and is fitted either with an anterior arch support, or else with a platform made of felt or sponge rubber, running from the heel to just behind the heads of the metatarsals

Results

From the patient's point of view—The results of this operation, as of many surgical procedures, are judged differently by the patient and by the surgeon. The vast majority of patients are immensely pleased Only two out of the 50 were doubtful whether they had derived any benefit Most of the patients before the operation were prevented from working owing to pain All of them are now at work of varying kinds, as shopmen, policemen, porters, domestic servants, gardeners, &c They one and all declared that there was no longer any pain in the big toe joint. Some, however, complained of pain in the other toes and under the outer side of the forepart of the foot A few remarked that they could not get the big toe on the ground, although they did not complain about it

From the surgeon's point of view the results are as follows · In every patient the severe valgus deformity had disappeared, the big toe might deviate slightly towards the other toes but in most cases it was straight The big toe was usually shorter than the second toe after the operation and possibly this was a factor in retaining the big toe in its straight position. The bunion always disappeared as a result of the operation, and this happened in spite of the fact that the bursa was rarely ever touched at the time of the operation. As regards the position of the big toe, in 75 per cent. of patients there was a slight amount of permanent dorsiflexion so that the big toe did not come down on to the ground The average range of movement was 15 degrees Although there was no relationship between the amount of power in the big toe and the amount of movement, the arc of movement did seem to influence, if the big toe was permanently dorsiflexed the power was feeble, while if the big toe touched the ground there was always considerable power My impression is that the best arc of movement is from 5 degrees of plantar flexion to 10 degrees of dorsiflexion, 10 degrees of dorsiflexion seemed ample for every purpose of/the big toe Our custom has been to bandage the big toe into dorsiflexion after operation to ensure that it should be dorsiflexed, in my opinion it would be better to aim for a straight position The range of movement, whether small or large, was invariably painless

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* A paper read before the British Orthopædic Association.

Cause and Relief of Metatarsalgia

A certain number of patients complained of pain in the other toes or under the heads of the metatarsals Unfortunately, owing to insufficient data, I do not know how many of these patients were suffering from metatarsalgia prior to the operation Judging from observations on recent cases not included in this review, I should estimate the number at 50 per cent

Although metatarsalgia is popularly supposed to be due to a dropping of the anterior arch, I find myself in sympathy with those surgeons who attach little importance to the anterior arch Certain it is that a flat anterior arch may be symptomless In my opinion, metatarsalgia and a flat anterior arch are associated, because with a flat anterior arch there often is a fixed dorsiflexion of the metatarso-phalangeal joints of the toes, and it is the limitation of plantar flexion at these joints that causes the metatarsalgia A brief explanation will make this clear When a person takes a step forward, his leg muscles have to lift the body off the ground and propel it forward This can be done in two ways If the ankle, tarsal, and metatarso-phalangeal joints are held stiff, the calf muscles (particularly the toe flexors) supply the power and the fulcrum is formed by the toes pressing down on the ground If the metatarso-phalangeal joints cannot be held stiff or are dorsiflexed, the toes can no longer act as the fulcrum of the movement and the fulcrum is shifted back to the heads of the metatarsals The heads of the metatarsals are not intended by nature to act as a fulcrum for the propulsion of the body, and if they are so used, there results the formation of callosities on the skin under the heads of the metatarsals and an irritative arthritis of the metatarso-phalangeal joints—the syndrome known as metatarsalgia By the term "metatarsalgia" I do not refer to the pathological condition associated with the name of Morton I employ it as a useful, indefinite term, in the literal sense—viz, pain in the neighbourhood of the metatarsals

The essence of the treatment of metatarsalgia consists in restoring the fulcrum from the heads of the metatarsals to the toes, and hence one's aim is to increase the range of passive plantar flexion at the metatarso-phalangeal joints by manipulations and to improve the power of active plantar flexion by strengthening the plantar flexors On this hypothesis the metatarsalgia existing prior to the operation is due to lack of toe plantar flexion, and the operation renders the condition worse because it often abolishes the power of plantar flexion of the big toe-joint

The review of the results of the operation for hallux valgus supports this hypothesis In patients with toes that were either clawed or rigid, metatarsalgia was the rule, in some of these the wearing of an anterior arch support, a concealed metatarsal bar, or a felt platform relieves the symptoms In patients with straight and mobile toes the support could be, and often was, dispensed with The less the big toe was dorsiflexed, the greater was the power in the big toe and the less frequent was the metatarsalgia

Considering that metatarsalgia is often present with hallux valgus or rigidus, it would seem advisable to treat the condition at the same time as the valgus; and I would suggest that as a routine before the patient leaves the operating table the inter-phalangeal joints should be forcibly straightened, and the metatarso-phalangeal joints should be forcibly plantar flexed—after tenotomy of the extensor tendons if necessary—and maintained in that position by means of a slab of plaster-of-Paris which could be removed on the tenth day when the stitches are taken out Then the masseuse will take care to preserve the power of plantar flexion at the metatarso-phalangeal joints and to strengthen the interossei muscles by faradism and exercises

Age in Relation to Operation

The age of the patients operated upon varied between 16 and 71 The most successful operations were those done on patients below the age of 20 Six patients under that age were operated on; one plays tennis and walks any distance, the second walks 20 miles a day, one is a domestic servant on her feet all day long, another is a salesman in a shop from 8 A M to 6 P M, and the sixth goes in for sprint races and has won prizes for long distance running This is contrary to the usual belief that operations during the growing period are inadvisable, and certainly for this reason these patients would not have been operated upon unless their symptoms had been severe and resistant to palliative measures Five suffered from hallux valgus and one from hallux rigidus Whether the operation is done for rigidus or for valgus does not seem to affect prognosis

Summary

To sum up, the operation of excision of the head of the metatarsal can be relied on always and completely to cure symptoms due to hallux valgus and to hallux rigidus It does not relieve metatarsalgia—in fact, it often makes it worse And it is suggested that the existing metatarsalgia should be treated at the time of the operation by straightening the toes and plantar-flexing the metatarso-phalangeal joints, and that further metatarsalgia be avoided by ensuring that the arc of movement of the big toe after the operation is the ideal one—i e, from 5 degrees of plantar flexion to 10 degrees of dorsiflexion

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FOUR CASES OF SPONTANEOUS SUBARACHNOID HÆMORRHAGE.

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IT is difficult sometimes to decide whether a disease is occurring more frequently or whether it is being recognised more commonly During six months four cases of spontaneous subarachnoid hæmorrhage were admitted to the Derbyshire Royal Infirmary. The publication of several recent papers has encouraged us to put this series on record

The Clinical Picture

The signs and symptoms on admission have conformed to a typical text-book description[1] The clinical picture has been that of cerebral compression and meningeal irritation combined, sometimes the one and sometimes the other preponderating, very similar to a case of meningitis where drowsiness, tending towards coma, is associated with irritability on examination. The symptoms of headache, vomiting, *stiffness of the neck*, and some rigidity of the limbs have been present in every case. But the temperature has been *normal in the first day* or two and the onset quite sudden, as one would expect in a vascular lesion Case 1 was in bed with headache and stiff neck 15 days before admission, but developed a sudden collapse with loss of consciousness after getting out of bed The others were prostrated as rapidly as a case of apoplexy No cranial nerve palsies were observed, but some degree of retinal change was present in two cases, the most striking one showed very definite hæmorrhages Lumbar puncture in all four cases revealed cerebro-spinal fluid under pressure which was deeply coloured with blood When allowed to settle there was some coloration in the *upper part* of the fluid, showing that the blood was not an accidental contamination No organisms *could be obtained* When coma was pronounced lumbar puncture relieved the condition, and all four patients made steady but variable progress towards recovery After a further rest in bed they were discharged without any *serious* symptoms remaining Glycosuria was not present;

but the two elderly patients had albuminuria, which cleared up eventually Herpes zoster has been described in this condition,[2] but was not present in our cases.

Diagnosis.

The diagnosis is suggested by the sudden onset of the symptoms of cerebral compression associated with irritability on examination and other signs of meningeal irritation such as headache and neck rigidity. In one of our patients (Case 1) there would appear to have been some oozing, leading to neck rigidity, some days before free hæmorrhage occurred. The blood-stained cerebro-spinal fluid is quite characteristic, showing after standing a tinted supernatant fluid. In all our cases it was obvious and quite typical when taken immediately or a few days after the onset of the symptoms. Cerebro-spinal fluid withdrawn later on showed excess of leucocytes without red cells, which might have suggested meningitis if the earlier lumbar puncture had been omitted. Collier[4] points out that this is explained by the fact that the red cells have disintegrated and the leucocytes have remained, he states that a differential count will demonstrate that the cells are in the same proportion as in a count of the blood Some pyrexia may be present as in all cases of hæmorrhage into a serous cavity, but it develops after the onset in contrast to meningitis

Although herpes facialis is common in meningitis, herpes zoster does not occur, and Adie regards this latter, if present, as a valuable aid in the diagnosis of subarachnoid hæmorrhage [2] A large and rapidly fatal subarachnoid hæmorrhage is indistinguishable from a cerebral hæmorrhage which has ruptured into the ventricles; but this type of case is of pathological rather than clinical interest

Prognosis

From our own cases, all of whom recovered, and others recently recorded, the immediate prognosis would appear to be fairly favourable Six months after the illness three of our patients have resumed their normal life, with occasional headache in the two elder ones Case 4 did not have so long a rest in bed, and although getting about has not progressed so well Symonds says the attacks tend to recur, and quotes a case of recovery in which two previous attacks had been diagnosed as meningitis [1] The recording and following up of such cases as ours should furnish knowledge from this point of view

Ætiology

Hæmorrhage into the subarachnoid space in such conditions as diseases of the blood and infective endocarditis does not concern us In spontaneous cases, two underlying pathological conditions have been found Hæmorrhage may occur as the result of atheroma of the cerebral arteries, but in many cases it comes from the rupture of a congenital aneurysm which is not easy to demonstrate but is not uncommon around the circle of Willis [1] Our own cases, judged by their age, would suggest that two were due to congenital aneurysm and two to atheroma Symonds says syphilis is not a common cause Three of our patients were tested with negative Wassermann result The exciting cause of an attack might come up for discussion in a case of compensation, but it would not appear that any severe effort or injury is needed when the underlying pathological condition is present One of our cases was attributed by the patient's wife to a vigorous blowing of the nose

Treatment

Rest in bed, prolonged for some weeks after symptoms have subsided, is the main indication We did not use any drugs in our cases Lumbar puncture is indicated for increasing signs of compression and relieves the symptoms and danger On the contrary, where cerebral irritation is severe, it is difficult to perform and might do harm; moreover, some amount of increased pressure may tend to stop the bleeding.

Notes of the Cases.

Case 1 —L W., female, aged 52 years Nov 13th, 1925. Sudden severe frontal headache with stiffness of neck—patient was dazed and her speech thick—symptoms improved in bed and she got up on the 25th. Headache returned on the 28th, and patient collapsed in lavatory, she was picked up unconscious

On admission to Derbyshire Royal Infirmary she was comatose Temperature 97° F, pulse 47, very collapsed, two hours later she was drowsy, very irritable, with rigidity of neck, and vomiting frequently, pupils equal, regular, and reacted sluggishly to light, no paralyses, slight optic neuritis with several large hæmorrhages on the fundus, heart and lungs normal, blood pressure (systolic) 150 mm Hg, urine contained albumin, no sugar Vomiting was frequent for 24 hours as consciousness gradually returned. Nov 30th. Perfectly intelligent, headache and neck rigidity still present Lumbar puncture yielded 25 c cm of fluid, which contained much blood but no micro-organisms From then onwards recovery appeared complete On Dec 7th the cerebro-spinal fluid contained 35 cells per c mm, which were mixed polymorphs and lymphocytes On Dec 21st it contained eight lymphocytes per c mm The Wassermann reaction was negative in blood and cerebro-spinal fluid

Sept 11th, 1926. Patient active and well, but complains of headache when she is overtired Mental condition is perfect

Case 2 —S B, female, aged 59 years March 17th, 1926. Sudden frontal headache with gradual loss of consciousness.

On admission to the infirmary ten hours later she was comatose, with neck rigidity and Kernig's sign positive on both sides Temperature 97° F, pulse 80 The pupils were equal, regular, and reacted sluggishly to light, the plantar reflexes were both flexor Heart and lungs normal, urine contained albumin, optic discs normal March 19th Drowsy, irritable, and complained of frontal headache; neck still rigid and occasional vomiting On lumbar puncture 30 c cm of deeply blood-stained fluid was withdrawn, containing no micro-organisms April 10th Full consciousness and muscular power returned gradually, neck rigidity being the last sign to disappear

Sept 9th Patient well and getting about, still has occasional lapses of memory and frontal headache

Case 3 —E S, male, aged 13 years Jan 3rd, 1926 Sudden occipital headache while walking in street, walked 100 yards home and lay down He never lost consciousness, headache was severe and continuous, and vomiting frequent for 36 hours

On admission to the infirmary on Jan 6th patient was drowsy and irritable and complained of violent pain in the back of his head Temperature 99 4° F, pulse 60, neck rigid and head retracted, Kernig's sign positive on both sides, no other signs in nervous system Heart and lungs, optic discs, and urine normal On lumbar puncture 35 c.cm of blood-stained fluid were withdrawn, with temporary relief of headache Examination of the fluid for organisms was negative To relieve the headache, which was very severe, lumbar puncture was repeated daily for five days, and thereafter less frequently The blood gradually disappeared from the cerebro-spinal fluid, and on the 30th normal fluid was obtained with a cell count of four lymphocytes per c mm Recovery appeared complete, the headache lasting for some days after the neck rigidity had cleared up

Sept 9th. Patient feels perfectly fit, is doing light work, and has had no return of headache Mental condition normal, no physical signs in heart, chest, or nervous system; optic discs normal Systolic blood pressure 130 mm Hg, blood Wassermann reaction negative

Case 4 —A S, male, aged 33 years May 16th, 1926 Complained of sudden slight pain in neck while taking a meal, half an hour later, on blowing his nose, fell unconscious He recovered consciousness partly in a few hours, and remained drowsy, vomiting frequently, and shouting with pain in his forehead for three days

On admission to the infirmary on May 20th patient was drowsy and irritable, and complained of frontal headache Temperature 99 4° F, pulse 76 Neck rigid, Kernig's sign positive, and extensor plantar responses on both sides; pupils normal; no signs in chest and heart, urine normal slight optic neuritis Lumbar puncture yielded 8 c cm of blood-stained fluid not under pressure, examination of the fluid for organisms was negative Full consciousness returned gradually without further vomiting May 22nd. Headache still severe On lumbar puncture 25 c cm of blood-stained fluid were withdrawn under pressure Headache relieved and did not return Recovery apparently complete, the neck rigidity disappearing last Blood Wassermann reaction negative

Sept 9th Patient still has occipital headache brought on by exertion, and has not returned to work No physical signs in heart, lungs, or nervous system; optic discs normal systolic blood pressure 185 mm. Hg.

We are indebted to Dr. A. D. Hunt for permission to publish Case 8.

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Clinical and Laboratory Notes.

A CASE OF MUMPS ENCEPHALITIS.

BY HARRY BEDINGFIELD, D.S.O., M.B., CH.B. EDIN., M.R.C.P. LOND.

REPORTS of mumps encephalitis are sufficiently rare to justify the publication of the following case.

On Dec. 23rd, 1925, a previously healthy boy, aged 5 years, while Christmas shopping with his mother, complained of the sudden onset of pain in his legs sufficiently severe to prevent him from walking and necessitating his immediate return home by taxi-cab. He was seen by me an hour later and found to have a temperature 104° F, pulse-rate 80, and respirations 25. His right knee was slightly swollen, and both knees and tibiæ painful and tender. There were no other physical signs to be detected. On the 24th temperature was normal, and the swelling of the knee had disappeared but he complained of tenderness of the extensor thigh muscles. No further physical signs had appeared, yet the child looked ill, was somewhat dull mentally, and refused food. In the evening, with a rise in temperature, all pain disappeared. On Christmas Day his condition was the same until the afternoon when I was hurriedly called to see him as he was said to have "collapsed." I found him with a barely perceptible pulse, feeble respiration, and semi-comatose, only answering after repeated questioning. Two hours later this state had completely passed. On the 26th his condition remained the same, "collapsing" each afternoon and rallying in the evening. From the onset of his illness he was obstinately constipated, refused all food, and vomited any nourishment that was forced upon him. A blood-count revealed a leucocytosis of 12,000 with polymorphonuclears 85 per cent. On the morning of the 28th he was so severely collapsed that the parents believed him to be dead, but he rallied in about an hour. He then complained of pain and tenderness in the epigastrium. For the first time a few rhonchi and scattered crepitations appeared in both lower lobes of his lungs. In the afternoon I found him presenting a most striking picture. Propped up in bed as if intensely dyspnœic, he had an area of intense pallor around his nose and mouth, with a deeply flushed face and neck. The epigastrium was firmly retracted and there were no respiratory movements of his lower ribs. Examination of his chest revealed a definite early broncho-pneumonia of the left lower lobe with respirations 40. The whole appearance of the child was that of being in intense pain although complaining of none. Dr. C. W. Vining saw the boy in consultation with me and neither of us could suggest an explanation of his condition. It was decided to give him a hypodermic injection of morphine (gr. 1/12) and await events. Three hours later the child was quite unconscious, lying on his side, head retracted, both arms rigidly extended at the shoulders, pronated and flexed at the wrists and fingers, both lower limbs were hyperextended, and his feet plantar flexed. Two hours later Dr. Vining saw him again with me when the rigidity had passed off sufficiently to perform a lumbar puncture. There was no increase in the pressure of cerebro-spinal fluid which was perfectly clear. The child appeared to be so seriously ill that we concurred in giving the gravest prognosis. He was given a full dose of anti-pneumococcal serum in the belief that he was suffering from a pneumococcal septicæmia. On the 29th the child was still alive. Extensor spasm had completely passed and he lay curled up as if in a state of cerebral irritation with a relaxed open mouth and widely dilated pupils which still reacted to a strong light. Ophthalmoscopic examination showed dilatation of the retinal veins, no tendon reflexes could be elicited, and there was a positive Babinski. The abdomen was protuberant and reflexes absent. There was incontinence of urine and fæces. Notwithstanding skilled nursing, reddening of pressure points appeared with extreme rapidity, and the skin round the lumbar puncture began to slough. Unfortunately, the pathologist reported that the cerebro-spinal fluid had been contaminated by blood but he was of opinion that there was an intense lymphocytosis present. A blood-count, however, showed the polymorphonuclear leucocytosis was still present. On the 30th his condition was much the same, except for paresis of his right external rectus and the development of a distressingly frequent cerebral cry. On the 31st he suddenly regained consciousness at 7 A.M. and feebly asked for something to eat. However he immediately relapsed and did not regain consciousness again until 11 A.M. I saw him shortly after and he was then lying on his back with a Parkinsonian face and a pronounced external paresis of his eye muscle. I concluded he was suffering from encephalitis lethargica. He regained control of his bowel but had passed no urine since the night before, and his bladder was empty. On Jan. 1st, 1926, he still had anuria. Myoclonic movements appeared in his neck, extensor thigh, and abdominal muscles. On the 2nd he took some food and passed urine for the first time for 72 hours. In the evening both parotids became swollen, and a septic parotitis was diagnosed. On the 3rd myoclonus and paresis of his rectus had passed away, but the child now seemed to be gravely ill with broncho-pneumonia. On the 4th I was called to see a neighbour's boy whom I found to be suffering from mumps. I was then informed that the child had been in contact with no other child but my patient a fortnight previously. I now suspected that the case I am reporting was one of mumps with cerebral symptoms appearing before the parotid swelling. From the 2nd to 10th his chest condition slowly improved. On the 11th parotids began to subside and by the 16th the chest was clear. The child was well except for the extreme weakness of having passed through a severe illness. He has been seen by me at intervals. Over a year has now elapsed without the development of any sequelæ. The boy is a healthy robust child, normal in all respects both mentally and physically, which seems to rule out any possibility of his attack being one of encephalitis lethargica.

Although the first recorded case of cerebral manifestations in mumps is said to have been reported in England by Hamilton, there has been little attention paid to this aspect of the disease in English medical literature. Maximovitch, who reported the first post-mortem examination of a case dying from cerebral manifestations, found œdema of the brain surface, the sulci filled with a semi-fibrinous exudate, and hyperæmia of the pons and spinal cord. Lannois and Lemoine were the first to suggest that the cerebral manifestations were due to a true meningo-encephalitis. Acker, in 1913, was able to collect 30 fatal cases up to that time and reported two of his own in both of which he found a meningo-encephalitis at the base of the brain. During the war numerous reported cases were published by Haden, Casparis, Howard, and Larkin from the American armies, and by Michelean, Fiessinger, de Massary, and Sainton from the French. In all these reported cases the cerebral manifestations appeared after the parotitis. I can only find one case in the literature where they appeared before—namely, that reported by Colomb and Mercier of a soldier who was found comatose in his barrack-room with dilated pupils, stiff neck, and a positive Kernig sign. He remained in coma for three days, after which his temperature and pulse-rate fell and a double parotitis appeared. In the other cases where cerebral symptoms have been reported prior to the parotitis, these symptoms have been so slight or of such short duration that they could be well explained by the pyrexia. In none of them did they last longer than a few hours.

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but the two elderly patients had albuminuria, which cleared up eventually Herpes zoster has been described in this condition,[2] but was not present in our cases.

Diagnosis.

The diagnosis is suggested by the sudden onset of the symptoms of cerebral compression associated with irritability on examination and other signs of meningeal irritation such as headache and neck rigidity. In one of our patients (Case 1) there would appear to have been some oozing, leading to neck rigidity, some days before free hæmorrhage occurred The blood-stained cerebro-spinal fluid is quite characteristic, showing after standing a tinted supernatant fluid In all our cases it was obvious and quite typical when taken immediately or a few days after the onset of the symptoms. Cerebro-spinal fluid withdrawn later on showed excess of leucocytes without red cells, which might have suggested meningitis if the earlier lumbar puncture had been omitted Collier[4] points out that this is explained by the fact that the red cells have disintegrated and the leucocytes have remained, he states that a differential count will demonstrate that the cells are in the same proportion as in a count of the blood Some pyrexia may be present as in all cases of hæmorrhage into a serous cavity, but it develops after the onset in contrast to meningitis

Although herpes facialis is common in meningitis, herpes zoster does not occur, and Adie regards this latter, if present, as a valuable aid in the diagnosis of subarachnoid hæmorrhage[2] A large and rapidly fatal subarachnoid hæmorrhage is indistinguishable from a cerebral hæmorrhage which has ruptured into the ventricles; but this type of case is of pathological rather than clinical interest

Prognosis

From our own cases, all of whom recovered, and others recently recorded, the immediate prognosis would appear to be fairly favourable Six months after the illness three of our patients have resumed their normal life, with occasional headache in the two elder ones Case 4 did not have so long a rest in bed, and although getting about has not progressed so well Symonds says the attacks tend to recur, and quotes a case of recovery in which two previous attacks had been diagnosed as meningitis[1] The recording and following up of such cases as ours should furnish knowledge from this point of view

Ætiology

Hæmorrhage into the subarachnoid space in such conditions as diseases of the blood and infective endocarditis does not concern us In spontaneous cases, two underlying pathological conditions have been found Hæmorrhage may occur as the result of atheroma of the cerebral arteries, but in many cases it comes from the rupture of a congenital aneurysm which is not easy to demonstrate but is not uncommon around the circle of Willis[1] Our own cases, judged by their age, would suggest that two were due to congenital aneurysm and two to atheroma Symonds says syphilis is not a common cause Three of our patients were tested with negative Wassermann result The exciting cause of an attack might come up for discussion in a case of compensation, but it would not appear that any severe effort or injury is needed when the underlying pathological condition is present One of our cases was attributed by the patient's wife to a vigorous blowing of the nose

Treatment

Rest in bed, prolonged for some weeks after symptoms have subsided, is the main indication We did not use any drugs in our cases Lumbar puncture is indicated for increasing signs of compression and relieves the symptoms and danger. On the contrary, where cerebral irritation is severe, it is difficult to perform and might do harm, moreover, some amount of increased pressure may tend to stop the bleeding.

Notes of the Cases.

CASE 1—L W, female, aged 52 years Nov 13th, 1925. Sudden severe frontal headache with stiffness of neck—patient was dazed and her speech thick—symptoms improved in bed and she got up on the 25th Headache returned on the 28th, and patient collapsed in lavatory, she was picked up unconscious

On admission to Derbyshire Royal Infirmary she was comatose Temperature 97° F, pulse 47, very collapsed, two hours later she was drowsy, very irritable, with rigidity of neck, and vomiting frequently, pupils equal, regular, and reacted sluggishly to light, no paralyses, slight optic neuritis with several large hæmorrhages on the fundus, heart and lungs normal, blood pressure (systolic) 150 mm Hg, urine contained albumin, no sugar Vomiting was frequent for 24 hours as consciousness gradually returned Nov 30th· Perfectly intelligent, headache and neck rigidity still present. Lumbar puncture yielded 25 c cm of fluid, which contained much blood but no micro-organisms From then onwards recovery appeared complete On Dec 7th the cerebro-spinal fluid contained 35 cells per c mm, which were mixed polymorphs and lymphocytes On Dec 21st it contained eight lymphocytes per c mm The Wassermann reaction was negative in blood and cerebro-spinal fluid

Sept 11th, 1926· Patient active and well, but complains of headache when she is overtired Mental condition is perfect

CASE 2—S B, female, aged 59 years March 17th, 1926 Sudden frontal headache with gradual loss of consciousness

On admission to the infirmary ten hours later she was comatose, with neck rigidity and Kernig's sign positive on both sides Temperature 97° F, pulse 80 The pupils were equal, regular, and reacted sluggishly to light, the plantar reflexes were both flexor Heart and lungs normal, urine contained albumin, optic discs normal March 19th Drowsy, irritable, and complained of frontal headache, neck still rigid and occasional vomiting On lumbar puncture 30 c cm of deeply blood-stained fluid was withdrawn, containing no micro-organisms April 10th Full consciousness and muscular power returned gradually, neck rigidity being the last sign to disappear

Sept. 9th Patient well and getting about, still has occasional lapses of memory and frontal headache

CASE 3—E S, male, aged 13 years Jan 3rd, 1926 Sudden occipital headache while walking in street, walked 100 yards home and lay down He never lost consciousness, headache was severe and continuous, and vomiting frequent for 36 hours

On admission to the infirmary on Jan 6th patient was drowsy and irritable and complained of violent pain in the back of his head Temperature 99 4° F, pulse 60, neck rigid and head retracted, Kernig's sign positive on both sides, no other signs in nervous system Heart and lungs, optic discs, and urine normal On lumbar puncture 35 c.cm. of blood-stained fluid were withdrawn, with temporary relief of headache Examination of the fluid for organisms was negative To relieve the headache, which was very severe, lumbar puncture was repeated daily for five days, and thereafter less frequently The blood gradually disappeared from the cerebro-spinal fluid, and on the 30th normal fluid was obtained with a cell count of four lymphocytes per c mm. Recovery appeared complete, the headache lasting for some days after the neck rigidity had cleared up

Sept 9th. Patient feels perfectly fit, is doing light work, and has had no return of headache Mental condition normal, no physical signs in heart, chest, or nervous system; optic discs normal Systolic blood pressure 130 mm Hg, blood Wassermann reaction negative

CASE 4—A S, male, aged 33 years May 16th, 1926 Complained of sudden slight pain in neck while taking a meal; half an hour later, on blowing his nose, fell unconscious He recovered consciousness partly in a few hours, and remained drowsy, vomiting frequently, and shouting with pain in his forehead for three days

On admission to the infirmary on May 20th patient was drowsy and irritable, and complained of frontal headache Temperature 99 4° F, pulse 76 Neck rigid, Kernig's sign positive, and extensor plantar responses on both sides, pupils normal; no signs in chest and heart, urine normal slight optic neuritis Lumbar puncture yielded 8 c cm of blood-stained fluid not under pressure, examination of the fluid for organisms was negative Full consciousness returned gradually without further vomiting May 22nd· Headache still severe On lumbar puncture 25 c cm of blood-stained fluid were withdrawn under pressure Headache relieved and did not return Recovery apparently complete, the neck rigidity disappearing last Blood Wassermann reaction negative

Sept 9th Patient still has occipital headache brought on by exertion, and has not returned to work No physical was made by Dr Peter Milligan, to whom we are indebted for careful observations

Post-mortem examination —The salient feature of this examination was early leptomeningitis at the base of the brain without any cerebral tumour (A detailed description of the right eye follows) In the thorax was found a large mediastinal growth extending far into the roots of both lungs, but deeper into the left Small metastases were scattered throughout both lungs Similar deposits were found also in the liver and in glands around the abdominal aorta

The right eye displayed invasion of the sclerotic on the nasal side of the eyeball, from optic nerve to margin of cornea, by growth averaging 4 mm in thickness One boss of growth was found external to the sclerotic The choroid on the nasal side of the eye was deeply invaded and to a lesser extent on the opposite side The retina was detached and pushed forwards all round the periphery of the eye except at one small area internal to the optic disc Sections of this eye showed carcinomatous growth of the same nature as that found in the left eye and in the mediastinal tumour, but of more vigorous mode of growth and with tendency to fusion of the carcinoma cells into syncytial masses

Microscopic examination of the mediastinal growth showed a slow-growing malignant tumour, the malignant cells very polymorphic, characterised by low proportion of cytoplasm and with distinctly acinar arrangement In a few areas the malignant cells were of "oat-cell" type, in other areas their appearance was highly suggestive of a bronchial origin, the columnar type of cell being evident Throughout the tumour there was much fibrous tissue formation and large areas showed necrosis of the carcinomatous elements

Pathological Condition

Carcinoma of the choroid rarely reaches the stage of being other than flat , here in both eyes the tumour had become quite large, filling up an important proportion of the vitreous space This had led to a condition of glaucoma, which is described as very uncommon in intra-ocular carcinoma C A Clapp [1] has found reports of 118 cases of metastatic carcinoma of the choroid and describes carcinoma of the lung as the second commonest prime focus for such metastases According to this author carcinoma occurs bilaterally in one-third of the cases, and more frequently in the left eye than the right The route of invasion of the eye is thought to be along lymph channels to the posterior part of the eyeball and then forwards by infiltration Our case appears to have conformed essentially to general experience

Examination of the left eye, removed during life, showed that the eyeball and surrounding tissues contained a solid growth which enclosed the optic nerve externally to the eyeball, forming a mass nearly 2 cm in diameter Within the eyeball the choroid was deeply and symmetrically invaded over the whole of the posterior part of its extent, the retina being correspondingly detached In this orbit the greater part of the growth lay external to the eyeball Sections of the growth showed a carcinoma described at first view as spheroidal-celled and highly malignant The prime focus of the carcinoma at this period was not clear, and a pancreatic origin was suggested purely on histological grounds The true origin was only determined after death

It may be said that the growth was increasingly malignant as it progressed from lung to left eye and then to right eye, but in all these structures a common origin could be traced The identity of the so-called "oat-celled sarcoma" of the mediastinum with carcinoma of bronchial origin has been recently discussed by W G Barnard [2] In his series of 19 cases of mediastinal tumour the age-incidence tended to be relatively low—27 years in one instance The age of our patient was 39 In mediastinal carcinomata this author has found great variation in the form of the constituent cells, and our experience with the metastatic growths in these eyes also exemplifies the pronounced differentiation of carcinoma cells whose prime origin was in bronchial columnar epithelium Barnard's series does not include any orbital metastases

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[1] Clapp, C A Amer Jour of Ophth , 1926, No 7, ix., 153

[2] Barnard, W G Jour of Path and Bact , 1926, No 3, xxix., 241

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF ORTHOPÆDICS

A meeting of this Section was held on March 1st, Dr W T Gordon Pugh, the President, occupying the chair.

Mr A Rocyn-Jones read a paper on

The Treatment of Pes Cavus

He said that pes cavus (hollow foot) was the name given to a foot with an unusually high longitudinal arch Great variation in the relative heights of the arch was possible within normal limits, and often hollow foot of mild degree caused no trouble Cavus, however, was frequently associated with some other deformity Mr Rocyn-Jones dealt mainly with true or essential cavus

Ætiology.—Often the ætiology was not very clear, as the disability was not manifest until long after the exciting cause had disappeared But there were distinct contributory causes, which could be classified as follows (1) Postural, due to (*a*) faulty footwear, or (*b*) habit gait, compensatory for a short limb. (2) Paralytic, due to (*a*) acute specific fevers, including slight paralysis following rheumatism, scarlet fever, measles, and diphtheria , (*b*) infantile paralysis ; (*c*) chronic nervous disease, such as Friedreich's ataxy and progressive muscular atrophy , (*d*) congenital spinal cord lesions ; (*e*) external popliteal nerve injury. (3) Traumatic (*a*) foot injury, (*b*) racial custom—e g , Chinese foot

Mechanism of Deformity —The maintenance of the long arch of the foot, said Mr Rocyn-Jones, depended primarily upon the tone of the muscles Paralysis of the tendo Achillis would cause the heel to be drawn towards the toes by the plantar muscles, thus producing a cavus deformity, and the opposing dorsiflexors would tilt the foot upwards, but when these dorsiflexors were paralysed, an equinocavus deformity resulted Duchenne attributed pes cavus and the associated clawing of the toes to paralysis of the interossei and lumbrical muscles, this allowing the long and short extensors of the toes to overact by hyper-extending the first phalanges and flexing the two distal phalanges C A. Parker, of Chicago, believed that the deformity was due to the perversion of the normal reciprocal action between the flexors and extensors of the toes

Clinical Types —There were two main clinical varieties talipes arcuatus and talipes plantaris. In the former the heel and ball of the foot were in the same horizontal plane, whilst if the ball assumed a lower level than the heel, the condition was termed talipes plantaris Patients with pes cavus usually sought advice because of continued fatigue and pain in walking, due to the limited treading surface of the sole and excessive pressure on the heads of the metatarsals

Treatment —In slight pes cavus with a tendency to contraction of the toes the mother of the child should be taught to manipulate the toes and encourage the child to flex and extend them, a slotted metal splint being worn at night The boots must be long enough and roomy enough to give the toes due play Where the deformity was of moderate degree, with painful metatarsal callosities, a transverse leather bar should be added to the sole of the boot, behind the position of the corns If these measures did not give enough relief, an attempt should be made to flatten the arch by operation Formerly, Mr. Rocyn-Jones had tried to do this either by osteoclasis, by simple tenotomy of the plantar fascia with wrenching, or by excision of the plantar fascia He had now, however given up these procedures in favour of the Steindler operation Still, to that operation there were two serious drawbacks—namely, that sloughing of the wound edges occasionally

A CASE OF GONOCOCCAL ARTHRITIS,

WITH PATHOLOGICAL DISLOCATION OF THE HIP-JOINT

By E H Schwab, M D , B S Lond ,
ASSISTANT MEDICAL OFFICER, FEMALE V D DEPARTMENT,
GUY'S HOSPITAL

The following case of pathological dislocation seems to deserve record

A B , a single girl, aged 19, was admitted to Guy's Hospital on Sept 3rd, 1924, with a history of three to four months' vaginal discharge, for which she had received no treatment She had suffered from pain in the left hip for two months, and had been treated by rest in bed, and the application of a splint There was no history of injury to the hip The hip had become gradually worse, the least movement causing intense pain. The discharge had persisted, but was not very profuse

Condition on Admission —The patient showed signs of a typical upward dislocation of the left hip Her general condition was not good The temperature varied between 99° and 100° F , and her pulse averaged 110 On examination of the vulva, marked urethritis with inflammation of the Skene's and para-urethral ducts was discovered The cervix was found to be comparatively healthy, and it seemed that the chief site of infection was in the urethra and the ducts No gonococci were found in the first set of films taken from the urethra and cervix Cultures from the urethra grew *Staphylococcus albus* and *aureus* No pus cells nor gonococci were found in a catheter specimen of urine A skiagram of the left hip showed dislocation upwards and much erosion of the head of the femur

An anæsthetic was administered and a Thomas hip splint with overhead extension was applied to the left hip Local treatment for the discharge and urethritis was begun immediately.

After a few days the patient complained of pain in the right knee, which was found to be considerably swollen, with much limitation of movement The X ray report was as follows "Irregular rarefaction of articular extremities suggestive of infective arthritis No erosion of articular surface nor (apparently) of the cartilage" A week later the patient complained of pain and tenderness in the right loin She appeared extremely ill There was vomiting and hæmaturia She seemed collapsed after passing blood in the urine , temp 102 8°, pulse 120 Much blood was present in the urine , some specimens apparently consisting of almost pure blood This condition persisted for three days, when the urine was again free from albumin and blood Pathological report on the urine Two specimens were examined The clear specimen showed a few red cells, and pus also and some indefinite renal casts Albumin, say 0 5 per cent The hæmaturic specimen contained much blood and albumin in excess of the blood No pus or casts were seen

Films from the urethra now showed the presence of gonococci Cultures again grew *Staphylococcus albus* The urine examined later contained pus, *Staphylococcus albus*, and *Streptococcus brevis*, but no gonococci A month after the application of the extension apparatus the X ray report was "No dislocation now Infective arthritis with extensive erosion of the articular cartilage and of the underlying bone"

There was gradual improvement in the condition of the hip, and by the end of the year the patient was able to walk well with crutches The Thomas's splint had been replaced by a walking calliper with boot The signs of arthritis in the right knee had completely disappeared The vulvo-vaginal condition was much improved , only a slight mucoid discharge from the cervix and the para-urethral ducts persisting Films showed a few pus cells but no gonococci The patient was discharged from the ward and able to attend the out-patient clinic for treatment at the end of January, 1925

Treatment —On admission, local applications of protargol bougies to the urethra and protargol pessaries to the vagina twice daily also a daily intramuscular injection of 1 c cm of collosal manganese was given—about 15 doses in all. Later these were replaced by collosal iodine, 10 c cm every third day A mixture containing sandal oil and tincture of hyoscyamus was given by the mouth One dose of gonococcal vaccine (½ million) was given, but not repeated, because it was thought that perhaps the vaccine was the cause of the sudden exacerbation in the kidney

Whilst attending as an out-patient the cervix and urethra were swabbed at intervals with protargol and glycerine The patient had regular massage and was soon able to get about without a splint The hip became ankylosed and the left knee was stiff from disuse Manipulations of the left hip and knee were carried out under anæsthesia on two occasions The X ray report on the condition in December, 1925, was · "Hip old infective arthritis of hip-joint Bony ankylosis No evidence of activity Knee No evidence of disease Some degree of atrophy probably due to disuse"

The patient attended occasionally during 1926, reporting herself well each time Films taken from the cervix and urethra at each visit were free from gonococci In September, 1926, she was discharged as cured The local condition appeared normal She walked extremely well with her ankylosed hip, and the knee could be flexed to almost a right angle. Since then she has married, and is keeping perfectly well She can walk nearly a mile without feeling tired

My thanks are extended to Dr Morna Rawlins and Mr V Lloyd, and to Mr W. H Trethowan for kind permission to publish this case

A CASE OF
METASTATIC CARCINOMA OF THE CHOROID.

By Roy Thomas, M B , F R C S Edin ,
D O M S Lond ,
ASSISTANT OPHTHALMIC SURGEON TO THE SWANSEA GENERAL AND EYE HOSPITAL ,
AND
A F Sladden, D M Oxf ,
PATHOLOGIST TO THE HOSPITAL.

Carcinoma of the choroid is, perhaps, uncommon enough to justify the recording of the following case of bilateral metastatic carcinoma of the eyes involving the choroid The nature of the primary growth is of special interest

Clinical History

A man, aged 39, a congenital deaf-mute, was sent by his doctor to the Swansea General and Eye Hospital on Jan 11th, 1926 It was stated that a blow received on the left eye three months previously had been followed by gradual failure of the sight in that eye It was difficult to elicit accurate details, but the absence even of perception of light by the affected eye was evident The right eye had vision of 6/5 The left pupil reactions were absent There was no pain whatever Under homatropine both fundi were examined, the right being found apparently normal. The left disc was very swollen, but the rest of the fundus showed no abnormalities, even the vessels being of normal size

The man was admitted for observation but only remained three days owing to the restrictions placed on him His physical state appeared normal, as also his blood pressure and his urine Wassermann reaction negative , X ray examination did not help

A month later he appeared again The right fundus was still normal, but the left showed a totally different picture. The disc was now white and atrophic, and in the lower temporal area of the retina was seen a large flat detachment To its nasal side and apparently quite separate from it there was a smaller flat attachment Transillumination was very unsatisfactory

The patient refused admission but attended the hospital weekly for observation The detachment gradually spread over the whole fundus , there was still no pain Transillumination now definitely showed something solid beneath the retina The man refused to entertain the idea of enucleation of the left eye and avoided the department for three weeks At the end of that time he returned to complain of the right eye , examination revealed a small flat detachment on the upper nasal area of the retina, the disc was normal, central vision 6/7

After further irregular attendance he came to us a month later transferred from the Poor-law infirmary, now quite blind and very emaciated Severe hæmoptysis soon followed, physical signs of tumour in the chest were noticeable, and tenderness over the liver Two months later, having returned after a sojourn at home he came to us again, complaining of acute pain in the left eye A yellowish mass could now plainly be seen and the eye was acutely glaucomatous In the right eye the detached retina was plainly visible without an ophthalmoscope, but the tension was normal The left eye was enucleated and the diagnosis of carcinoma definitely established The patient died five weeks later (August 11th) and a post mortem examination from an abscess in the lung, although up to this time there had been no pyrexia at any time and no expectoration

Dr **C L McDonagh** showed radiograms demonstrating the pleural effusion and, after aspiration, the lung abscess and tumour

Dr **J Lait** described the post-mortem appearances

The right lung contained a large abscess and a tumour was found involving the root of the lung The pericardium was adherent and thickened and contained numerous pea-shaped metastases, which did not involve the heart muscle The tumour at the root of the lung surrounded and practically occluded the superior vena cava where it entered the right auricle The left innominate vein was thrombosed The spleen contained a small secondary deposit in its anterior border There were many retroperitoneal glands involved by the tumour spread, which had also invaded both suprarenals No metastases were found in the bones All the other organs and viscera were found free of any tumour

Microscopical examination of the primary tumour in the lung and its metastases showed a carcinoma composed of solid masses of spheroidal cells, supported by a fairly dense but variable stroma Many of the cells showed vacuolation —apparently an attempt at secretion In places there was an appearance of glandular formation

In an advanced malignant tumour of this sort, said Dr Lait, it was almost impossible to discover whether the cancer originated from bronchial or alveolar epithelium Microscopically he had identified the tumour growing in the lining of the bronchi, though the bronchi contained no tumour visible to the naked eye The localisation of the neoplasm to the hilus of the lung, with but little diffuse invasion of the lung parenchyma, suggested a bronchial carcinoma He thought that it had its origin in the mucous glands of the bronchus Discussing the tendency to classify all mediastinal tumours and lung tumours as either sarcoma or endothelioma, he referred to the recent investigation made by J B Duguid of Manchester, who had reinvestigated many mediastinal and lung tumours, and had found that many labelled as sarcoma or endothelioma were really carcinoma

Dr **William Boxwell** showed a specimen from a case of

Aortic Disease

The patient was a man aged 37 who had been admitted to hospital about a year previously in an acute stage of cardiac failure He had only been ill for four days, and stated that the condition had come on quite suddenly after an unusually hard day's work He was a coal-heaver, and said that he shifted 17½ tons of coal daily from a dump on to a lorry His heart was very much enlarged, and he had double aortic disease He recovered comparatively quickly from the acute failure, and in five weeks was able to walk about

Later, however, he returned to hospital with symptoms of cardiac failure, and on this occasion did not respond to any kind of treatment, and died rather suddenly

Dr Boxwell said that he had expected to find that the condition was of syphilitic origin and the patient said he had had syphilis many years previously The Wassermann reaction was positive But it seemed extraordinary that a man who had a syphilitic lesion could have done so much work, and could have had such a finely compensated heart From the naked-eye appearance or even from the microscopical appearance, it was impossible to know what the heart muscle was able to do

Dr **A R Parsons** described

An Unusual Case of Appendicitis

The patient was a man who had almost recovered from an attack of influenza. A week after the attack he became jaundiced, and wandered in his mind. The urine was dark in colour, and contained bile pigment. The patient did not complain of any definite pain. The knee-jerks were absent, there was no history of syphilis On admission to hospital his temperature was 99° F, his pulse was fairly rapid, and he was slightly delirious He became extremely restless, and the next day his urine contained bile pigment and a little albumin, and the ammonium salts were greatly increased

He was very violent during the afternoon, said Dr Parsons, and in the night he became collapsed, and died at 10 o'clock the next morning, two days after admission He had only been ill for ten days Throughout the illness there was no vomiting, and Dr Parsons had considered that the diagnosis lay between uræmia and acute yellow atrophy

Prof **J T. Wigham**, in demonstrating the specimens said that the patient had died of appendicitis There was fluid on the left side of the abdomen and apparently a subphrenic abscess It was interesting to note that the pus in the abdomen was on the left side, and the abscess was on the right side There was no abscess in the kidneys or spleen He was not quite certain of the cause of the jaundice, but thought it was probably due to an almost complete necrosis of the kidney, somewhat similar to that found in acute yellow atrophy

The **President** read a paper by himself and **C R Boland**, and **R A Q O'Meara** on

Variant Colonies of Staphylococcus aureus

He described how, by growing a typical *Staphylococcus aureus* (purified by six successive platings) in broth, and plating the broth culture at intervals a number of variant colonies could be produced The departures from the normal were in respect of · (1) Colour, some colonies were quite white ("*albus*") (2) Texture, some colonies were rough (R), in distinction to the normal smooth (S). (3) Cohesion, some colonies were viscid (V) In ordinary broth a large number of "*albus*" colonies were found after six days incubation, "*aur*, R, VV" colonies were plentiful after 33 days In glycerol-broth, in which the staphylococcus produced an acid reaction, "*albus*" colonies appeared as in ordinary broth but "*aur*, R, VVV" colonies at a much earlier period On agar, variants were produced but only in colour and viscidity; rough colonies were never found Similar results to these had been found with other staphylococci The variants, while they showed a considerable tendency to breed true, did revert, under certain conditions, to the normal type

A number of other communications were made

SECTION OF OBSTETRICS

At a meeting of this Section, held on Feb 4th (partly reported in THE LANCET last week), Dr. **Bethel Solomons** read notes on

Epistaxis as a Symptom of Toxæmia of Pregnancy

Having mentioned engorgement of the cavernous tissue of the nose was a symptom of pregnancy, and the rarity of epistaxis as a symptom of toxæmia he reported in conjunction with Dr T G Wilson, the following case

A primigravida, 26 weeks pregnant, came to the Rotunda Hospital with all the symptoms of toxæmia, these cleared to some extent, but three weeks later she returned with such intense epistaxis that it was necessary to plug anterior and posterior nares The urine was loaded with albumin and the blood pressure was 240

The patient was in imminent danger of death, and labour had to be induced After consideration of the various possible methods it was decided to do abdominal hysterotomy under spinal anæsthesia The preliminary morphine and scopolamine were so effective that stovaine was unnecessary, and the operation was performed without difficulty The nasal plugs were removed the following day She got on well on water diet, but unfortunately was given turkey and pudding on Christmas Day; this caused marked disturbance of vision, and the oculist, Dr F C Crawley, reported that she had retrobulbar paralysis She was kept first on water, then on light milk diet, and was finally transferred to a general hospital where she had improved considerably

Epistaxis, said Dr Solomons, might be regarded in the same light as toxæmic accidental hæmorrhage and the intra-abdominal and other bleeding seen in many severe types of toxæmia; but it was very rare

Dr **T G Wilson** said that it was seldom necessary to plug the posterior nares, but in this case it had been absolutely necessary in order to stop the bleeding, though he thought that if the patient had not been followed, and that there was a delay in the after-treatment. Steindler himself now operated through an incision on the inner side of the foot, extending from the back of the heel to a point in front of the anterior end of the os calcis Three weeks after the operation the patient commenced to walk in soft shoes, and he was also taught toe exercises.

In pes cavus of severe degree with gross bony deformity, every step by the patient was painful, and an attack on the soft parts alone was unlikely to bring relief In such cases, he thought, the Steindler operation should first be performed, followed later by bone-resection He favoured cuneiform tarsectomy at the point of maximum convexity of the arch In cases where the bony deformity was not very great but there was much dropping of the head of the first metatarsal, a good deal of improvement could be brought about by the following method which Mr. A. H Tubby had shown him A few weeks after the sole had been stretched by Steindler's operation an osteotomy of the first metatarsal was performed at the junction of the anterior third and posterior two-thirds The corrected foot was encased in plaster for six weeks, and then treated by massage and exercises. Sometimes, in combination with an operation on the plantar fascia, it was necessary to cut the extensor longus hallucis and re-attach it to the first metatarsal, the distal end being joined to the extensor brevis hallucis The result, however, was sometimes disappointing There was little scope for arthrodesis in essential cavus, said the speaker, but it was very effective in flexion of the great toe with a painful dorsal corn In conclusion, he pointed out that pure cavus deformity was not very common, but cavus was frequent in association with other deformities Symptoms usually developed during adolescence, though the exciting cause might have been an illness at a remote date There was a dropping of the foot due to weakness or paralysis with resulting secondary contracture of the plantar fascia, forcing the bony arch to expand upwards during growth The form of treatment called for depended on the degree of the cavus Proper after-care, in the way of splinting, exercises, electrical treatment, and footwear, was important.

Discussion.

The PRESIDENT thought that the profession insufficiently appreciated the fact that mild pes cavus was apt to follow an acute illness Children who had been kept in bed for a long time often suffered afterwards from mild pes cavus, and those kept in bed for more than a few days should have the weight of the bed-clothes taken off the feet by means of a low cradle They should also have daily ankle and toe exercises.

Mr. NAUGHTON DUNN said that it was common to see a cavus deformity in which there was no shortening of the tendo Achillis, and that, he thought, was the true pes cavus It often resulted from a weakness of the dorsiflexors of the ankle; the extensors of the toes, in their effort to dorsiflex the foot, caused dropping of the metatarsals and shortening of the structures of the sole of the foot This type was usually well treated by division of the plantar fascia and the structures attached to the os calcis, by Steindler's or some other simple operation, the important point being that there should be complete over-correction of the deformity after the cutting part of the operation The type of cavus deformity which caused most difficulty, and in which he was most interested, was that which occurred in children of 5 to 7 years of age, and was of insidious onset It was progressive, and he did not know what the cause was By division of the plantar fascia and the structures attached to the os calcis good correction of the foot could be obtained by wrenching and complete over-correction The result appeared to be good, but there was a great tendency to relapse This could be prevented by dividing the tibialis posticus tendon

Mr. R. OLLERENSHAW spoke in advocacy of the operation of transplanting five tendons Within four years he had done 33 operations of that kind on 27 patients During the same period he had had only three cases of pes cavus which required a bone operation

Mr WHITCHURCH HOWELL thought that division of the plantar fascia should be done less and less, and in a mild case only if a metatarsal bar was not sufficient The transference of the extensor longus pollicis through the neck of the metatarsal bone should be condemned, for it was anatomically unsound During the last five years he had used a modified Steindler's incision; instead of the horse-shoe incision he made two short incisions, one on each side of the os calcis.

Mr. H A. T. FAIRBANK said that for some years he had been in the habit of making an incision on the inner side of the foot to divide the ligaments which the Steindler operation did not enable the surgeon to reach. It was advisable to divide the ligaments between the internal cuneiform and the metatarsal, it made it possible to correct a bad case Sometimes after the Steindler operation he had seen nasty lumps in the sole of the foot, and Steindler himself was careful not to do a subperiosteal operation at the tuberosity of the os calcis; he cut just superficially to the periosteum. In order to prevent relapses, Mr Fairbank had, in a number of cases, transplanted the extensor tendons into the heads and necks of the metatarsal bones, and had been pleased with the results

Mr. P J VERRALL spoke highly of the method of tendon transplantation He had done it about 15 times, and had been very pleased with it In the Steindler operation he employed an inch incision on the inner side, using the knife and cutting above the tuberosity of the os calcis, separating the lower part of the heel from the sole with the knife, and then using the periosteal elevator above the incision

Mr C LAMBRINUDI said that Mr W H Trethowan had been advocating the Steindler operation combined with scaphoidectomy, which had the advantage of a wedge incision and of leaving two cartilage-covered surfaces opposed to each other. Mr Trethowan and he had operated on a fair number of cases in that way, and it enabled them to flatten out the arch very well With regard to the toes, he had recently treated a case by arthrodesing every one of the interphalangeal joints, so as to get over the occurrence of clawing of the toes That converted the flexor longus digitorum into interossei, whose action was the one thing which was lacking in claw toes

Mr. ROCYN-JONES, in his reply, said that he believed in bone operations only for very severe deformity In some cases he did not see how the cavus could have been got over except by a drastic operation, either a bone operation or one like Mr Dunn's In severe cavus the bugbear was inversion of the heel.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

A MEETING of this Section was held on Feb 11th, Prof J. W BIGGER, the President, in the chair

SIR JAMES CRAIG reported on a case of

Primary Carcinoma of the Lung

A man, aged 51, was admitted to hospital on Nov 1st, 1926 His doctor said that he had a pleural effusion, and that about a pint of blood-stained fluid had been drawn off

On examination the face and ears were cyanosed, the upper thoracic region was œdematous with distended venules, and the arms and hands swollen from œdema. There was no enlargement of liver, no ascites, and no œdema of feet or legs There was a right pleural effusion The patient had a dry cough, but no accompanying expectoration

On Nov 14th the chest was tapped and 15 oz of blood-stained fluid withdrawn Later dyspnœa increased and the patient died on Nov 21st. Two days before his death he coughed up a quantity of foul smelling pus, evidently as neurosis, chronic parenchymatous nephritis, utero-ovarian disorders, and adenoids. Arterio-sclerosis is not mentioned in the list of causes of this symptom, nor is there any hint that the practitioner should take the blood pressure of patients complaining of occipital headache. The list of the chief signs of chronic parenchymatous nephritis is also misleading; these include œdema beginning in the face, increased arterial tension, diminished urine output, and high blood-urea The method of attempting to give causes in order of importance also leads to the presentation of a long list of diseases which would be clearer if classified on some definite plan. This is particularly obvious in the section on dyspnœa (p 391) where 32 common causes are set out in heavy type and a large number of less common causes in smaller type. There does not seem to be anything to account for the order in which any of these causes appear Such a book is hardly likely to help even that practitioner who finds "that his memory is defective and that he has perhaps forgotten or never knew many of the causes of that symptom." It is, indeed, questionable whether a book deliberately planned to make medical diagnosis merely a turning up of symptoms and finding the highest common factor of a number of causes has any value. Unlike treatment, diagnosis can never be satisfactorily tabulated; it surely comprises the whole of medicine

Ultra-violet Rays in General Practice

By W. ANNANDALE TROUP, *M.C*, M.B St Andrews London: H. K. Lewis and Co, Ltd 1926 Pp 59 *4s. 6d*

THE author of this small book pretends to no life-long acquaintance with the subject on which he writes for he tells us in his preface that it gives "the experience of the author in ultra-violet ray treatment in his general practice during the last year." He hopes that it may stimulate others to utilise "this beneficial form of treatment" Those in whom enthusiasm is tempered by caution will probably consider that a longer experience of any form of therapy is necessary before conclusions of value can be drawn from it

The first 30 pages of the book are devoted to a brief historical and scientific sketch of the subject and the technique of the therapy. Then follow 24 pages on the actual therapeutic applications and 5 pages of index, which seems a little out of proportion to the length or weight of the letterpress The value of the book lies in the fact that it may induce readers to seek more information, while as far as it goes it is sound.

Transfusion of Blood

By HENRY M FEINBLATT M D, Assistant Clinical Professor of Medicine, Long Island College Hospital Brooklyn, N.Y. The Macmillan Company. 1926 Pp xiv. + 137. *12s. 6d*

THIS monograph gives in a compact form the main facts concerning the history, theory, and practice of blood transfusion. The information is up to date, and the author adopts a judicial attitude towards the much-discussed question of citrated versus whole blood He regards both methods as of great value, and admits that there is no evidence that citrated blood is really injurious. His own preference, however, is for whole blood and he describes at length a method depending upon the use of a syringe apparatus of his own design This, in common with most whole blood methods of transfusion necessitates the presence of the donor by the side of the recipient, so that it is unsuitable as an adjunct to a surgical operation Dr Feinblatt regards the classification of blood groups as being at present in a state of flux, owing to the discovery of other factors in addition to those present in the four Moss-Jansky groups The author, however, has evidently found that in practice the usual four-group classification is a satisfactory working hypothesis

The Essential Oils.

By HORACE FINNEMORE, B Sc Lond, F.I.C. London. Ernest Benn, Limited 1926 Pp 880. *70s*

THE essential oils are of great technical and commercial importance being used not only in medicine but in the manufacture of foodstuffs and perfumery. The quantities imported into, and re-exported from, the United Kingdom every year are immense. Many of the essential oils are complex mixtures containing a number of different constituents; others are comparatively simple substances Their chemical constitution shows a wide range of variation from compounds of low molecular weight to those intricate substances, the terpenes, which are characterised by a number and variety of closely related substances Although many of the constituents of essential oils can be produced artificially, the oils are still obtained mainly from the plant world. The British Empire, with its varied climates and soils, should provide many of them, and Mr. Finnemore emphasises the comparative neglect of potential sources within the Empire

The arrangement adopted is that of the natural orders of which 76 are dealt with, including lichens and liverwort, and 2000 oils are described. It is claimed that the book gives for each oil its botanical source, cultivation, commercial production, chemical composition, physical characters, methods of analysis, and uses in industry, but actually this ideal is impossible of achievement in reasonable space; the descriptions of the oils of turpentine and eucalyptus alone occupy 46 and 70 pages respectively. The labour entailed in compiling such a work must have been considerable, and could only have been undertaken by one possessing first-hand technical experience. Most of the recent advances have been embodied in the text so that the information is up to date; where the chemistry of the substances is particularly complicated the formulæ of the various compounds are set forth in tabular form, showing their inter-relations Some parts are rather scrappy or obscure and the botanical sources of oils described are not always clearly stated; but the book will be welcomed as a valuable source of information as to the nature, origin, and uses of the essential oils

Pædiatrics.

Common Procedures in the Practice of Pædiatrics. By ALAN BROWN, M B, and FREDERICK F. TISDALL, M D, Physicians Toronto Hospital for Sick Children Toronto: McClelland and Stewart. 1926 Pp 260. $4.

THE object of this book is to bring within the reach of students and practitioners the methods employed in the children's hospital at Toronto. The authors have adopted the plan of describing a selected number of procedures in sufficient detail to enable the practitioner to carry them out without further information. The chapter on artificial feeding of infants has the merit of being simple; a clear account is given of the use of diluted cow's milk with added carbohydrate, which is presented as the method of choice for thriving infants who cannot be breast-fed. Considerable attention is paid to the diets of older children, and many valuable hints are given about their general management The technique of a number of therapeutic and diagnostic procedures, such as the parenteral administration of fluids and of chemical and biological reactions is lucidly described, but the encouragement to use the superior longitudinal sinus for the introduction of fluids will not meet with universal approval. A useful chapter on difficulties in diagnosis prepares the reader for some of the pitfalls with which he may be beset in the examination of sick children

This book should be of considerable use as a supplement to a text-book, both to the student and to the practitioner pregnant the loss of blood would have probably done her good, as it would have brought down her blood pressure, which was very high. The condition appeared to be rare Referring to treatment by X raying the spleen, he said that if this case had not been so urgent this method of treatment would probably have been successful, as it would have brought down the high blood pressure, which he regarded as the cause of the epistaxis

The CHAIRMAN was scarcely inclined to regard this case as one of toxæmia of pregnancy, he thought it more probably a case of severe nephritis supervening on pregnancy In the vast majority of stillbirths the cause was underlying bad health of the mother In this case the condition must have been present for some time, as it seemed to him unlikely that retrobulbar neuritis would come on 24 hours after the taking of solid food Ocular symptoms such as optic neuritis, of course made the prognosis in these cases much more gloomy

Prof A H DAVIDSON, referring to the termination of pregnancy in this case, asked if it would not have been less of a shock and less danger to the patient if labour had been induced by means of a stomach-tube instead of by opening the abdomen Labour in these cases of albuminuria and toxæmia was usually very easy.

Dr D J CANNON said that whilst, from the point of view of reducing shock, it was best to employ spinal anæsthesia, he thought that it was supposed to be bad in cases of high blood pressure, and the patient in this case had had a high blood pressure He agreed with Dr Cassidy that the case appeared to be more one of nephritic toxæmia than of toxæmia of pregnancy Sometimes ocular symptoms occurred in pregnancy, but cleared up immediately afterwards He thought that Dr Solomons had been quite right to empty the uterus in this case In nephritic toxæmia the great danger was severe deterioration of the kidney.

Dr G. TIERNEY asked if Dr. Solomons had found in the literature any case of epistaxis as serious as the two cases which he had reported He himself had had a case of epistaxis recently in a woman five months pregnant, but the epistaxis was checked by the administration of calcium lactate She, however, had not had albumin in her urine

Dr SOLOMONS, in reply, said that he thought it was a true case of toxæmia, many women dated their troubles from a supposed chill or trauma, and little attention need be paid to them The urine had been normal before pregnancy It was a fallacy that the toxæmias of pregnancy occurred only in the later months; he had seen many examples in the fourth, fifth, and sixth months, and they were most difficult to treat Abdominal hysterotomy was the method chosen because it was quick, and speed was necessary X ray treatment of the spleen would not have been suitable for the same reason He did not fear the possibility of sudden diminution in the blood pressure with spinal anæsthesia He agreed it was difficult sometimes to differentiate between a true nephritis and toxæmia The literature on the subject of epistaxis in pregnancy was meagre

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ROYAL MEDICAL BENEVOLENT FUND —The following are some additional cases relieved at the last meeting —

Widow, aged 55, of M B who died in 1923 No children Supplements her income of £35 per annum by taking paying guests Lives in her own house rates amount to £25 per annum There has been no paying guests for the past three months so the applicant asks for a little help Voted £18 in 12 monthly instalments

L R C P, aged 70 Owing to age is unable to obtain work, and about three weeks ago had a stroke He is now in a home and is dependent upon charity, as his savings are exhausted Previous help given by the Fund amounts to £68 A further sum of £15 was voted

Subscriptions may be sent to the Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W.1.

Reviews and Notices of Books.

TREATMENT OF CHRONIC ARTHRITIS AND RHEUMATISM

By H WARREN CROWE, D M, B Ch Oxf., M R C S, L R C P London · Humphrey Milford, Oxford University Press 1926 Pp 196. 8s 6d

Dr. Crowe here offers to the clinician and general practitioner his matured views on the causation and treatment of rheumatic disease This volume is only the first half of a work to be completed by another section devoted to theoretical argument and a description of experimental technique for the benefit of the bacteriologist and specialist It is, however, complete in itself Dr Crowe believes that chronic arthritis is a disease caused by bacteria, and has evolved a form of vaccine therapy for which he claims not only better results than from any other treatment, but the power of stamping out, if applied in the early stages, practically all forms of arthritis The two conditions of rheumatoid arthritis and osteo-arthritis have each, according to him, their own causal organism ; the latter disease is attributable to a non-hæmolytic streptococcus, while the former he believes to be caused by a certain group of white staphylococci, described by him in 1912 and named *Micrococcus deformans* Both organisms are alleged to be present in either condition, but as primary and secondary infections respectively Since their toxicity is low, he believes that the system does not generate immunity against them, and that the way to cure them is to raise the resistance of the body. The author admits that observers of the calibre of Prof Stockman and Dr S Boorstein have either ignored or condemned vaccine therapy of chronic rheumatism, but, in his view, the fault has hitherto lain in the method and not the theory Those who have tried and failed have, he says, not sufficiently realised and allowed for three important factors—the variability of the bacterial flora, the magnitude of the diseased area, and the frequent intolerance of patients to vaccines These obstacles he claims to overcome by the use of sufficiently polyvalent vaccines, by very careful dosage according to Wright's law that the dose should be inversely proportional to the amount of the disease, and by careful allowance for sensitivity, which may be essential to the cure

Dr Crowe is an enthusiast who writes in an interesting and persuasive manner The trial of his methods by impartial practitioners is certainly desirable

SYMPTOM DIAGNOSIS

Regional and General By WILFRED M BARTON, A M, M D, F A C P, Associate Professor of Medicine, Medical Department of Georgetown University, and WALLACE M YATES, A B, M D, Fellow in Medicine, Mayo Foundation, Rochester London and New York D Appleton and Company. 1927 Pp 851 £2 2s

THIS book is designed "for quick reference while the patient is being prepared for examination or while he is dressing after the examination" Granted that such a sort of book is desirable, then the authors may be congratulated upon having produced a remarkable, complete, and concise volume It consists first of all of regional symptoms, considered under such headings as "the jaw," "the larynx" "the lower extremity," and so on, then follows a section of nearly 200 pages on general symptoms, containing very complete articles on such subjects as insomnia, obesity, diarrhœa, and dwarfism This part of the book contains little which can be criticised unfavourably Elsewhere it is more vulnerable, since the main scheme, to arrange the causes of various symptoms "in order of importance," is not very successful in practice For example, the first four causes of occipital headache (p 7) are given

I THE LANCET.

NDON: SATURDAY, MARCH 12, 1927

THE PATENTING QUESTION.

application made by G F and G H Dick atent in respect of what are labelled "improve- in scarlet fever toxin and antitoxin and ls for producing same" will cause considerable ension A specification has been deposited Patent Office in respect to the discovery of a of isolating hæmolytic streptococci specific et fever, growing them in a suitable medium aining therefrom toxin and antitoxin specific et fever Patents in this respect, it appears, ng *obtained both in England and America* tent specification includes the processes for ng the antitoxin, the method of using the kin for tests, and other connected processes em of monopoly is allowed to pervade medical what is to be the end of it ? What is revent the monopolist from stifling research, g the manufacture of vital remedies, or from 40 rices so high that the poor patient will have ct of competing for them against the rich ? nts and Designs Acts contain provisions Government departments can intervene processes in special cases *In naval and* atters monopolies are not allowed to prevent from equipping itself with the necessary *self-protection* Is it not time to apply inciples to the fight against disease ?

s of great importance are raised by this ndency to use the methods of commercialism duction and protection of medical remedies ars *ago*, when E von Behring patented heria antitoxin, professional opinion in and elsewhere was naturally hostile to the f personal fortunes *from* biological patents ; was everywhere ignored, and no effective s made by the patentee. Since then the o use the machinery of patent laws for fit of the discoverer of a drug or pro- ve been chiefly concerned with new drugs, of which salvarsan is an *example* years, however, another invasion of com- n into the marketing of biological products manifest Insulin was patented by *the* y of Toronto presumably in order that eeds might be used to further research ate, no selfish use has been made of the This result was doubtless the outcome licious intervention of the Medical Research whose immediate action prevented the rom being flooded by imitation products, ed a safe and cheap supply as quickly as in this country. In other hands such a patent might easily have been abused. As a general rule, however judiciously money derived from the sale of patent remedies is expended, the exclusion of free competition in manufacture and the payment of royalties may keep up prices, and so prevent the full benefit of a new remedy or a diagnostic test from reaching the largest possible public A further possibility of abuse occurs when the business firm to which a new product is entrusted by the patentee is unable or unwilling to provide a potent preparation on a commercial scale, while other firms are not allowed to attempt to do so We called attention more than a year ago to the double confirmation of the work of E Herrmann and S Fränkel (1915), *who prepared* an active extract of the ovarian hormone by a method patented by them on Feb 13th, 1918 (E P 113, 311) We still await the large scale production of a standardised active extract of this hormone. None of the commercial material which has reached this country appears to fulfil *the biological test of* producing œstrus when injected subcutaneously into a female rat As a pleasant contrast, manufacturers were left free to produce for commercial purposes a parathyroid extract prepared by Collip's method, and we have already been able to publish accounts of the valuable clinical results obtained by its use

So long as protection by patent was confined to what are known as patent medicines, the matter was not overwhelmingly serious There were objections to the system which invests the pill and the cough mixture with magic qualities in excess of their merits, but the general improvement in public knowledge has mitigated these evils ; medical men may think hardly of the situation, but the Exchequer will remember that a not inconsiderable revenue is derived from the stamp duties on proprietary medicines Selfishness is not a vice of which its worst critics have hitherto been able to accuse the medical profession or the research worker in this country Medical ethics reject monopoly What is to be the effect upon research if the Patent Acts are invoked to protect each stage in scientific progress ? Rewards will be claimed for the man who gives some finishing touch, perhaps almost accidentally, *to work* done by men in many countries and for many years without reward Indeed, if we glance again at the naval and military parallel, it is notorious that the special machinery for remunerating inventors in respect of devices used in the Great War has been open to much criticism, both on general principles and in the matter of particular awards Medical research, *conducted in the public interest*, is as incompatible with secrecy and shut doors as with legal injunctions or heavy royalties Present tendencies are disquieting and indeed alarming Public opinion needs to be aroused and action taken The medical profession will unhesitatingly repudiate the commercial exploitation of scientific discoveries which relieve pain and cure or prevent disease In this condemnation it should be sure of the support of public opinion, having successfully combated the evils of monopolies three hundred years ago, this country is not likely to tolerate them to day in the sphere of medical treatment

PHILOSOPHY

The Meaning of Disease. By WILLIAM A. WHITE, A M, M.D. London. Baillière, Tindall and Cox, Baltimore: Williams and Wilkins Company 1926 Pp 220 13s 6*d*

THE author is concerned to urge upon medical men that they should take a more philosophic view of the subject of their study. In the rush for the discovery of new facts by the analytic method and in the constant refinement of technique there is too much neglect of that laboratory in which the equipment is ideas and intuitions, the procedures being processes of thought The part of man which needs more attention is the psyche, and his social relations, which equally constitute an essential part of him, are also not considered as much as they should be. Dr White writes in an interesting way and he certainly preaches from some striking texts; we may quote three. "Nature must be considered as a whole if she is to be understood in detail" (Bunge), "A fit organism inhabits a fit environment" (L J Henderson); "The last thing to be discovered in any science is what the science is really about" (Whitehead) It is good for us to be reminded of such sayings as these, they are worth thinking about. The book is nicely produced, but it is somewhat costly

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THE DANCE OF CIVA.

Life's Unity and Rhythm By COLLUM London Kegan Paul, Trench, Trubner and Co Pp 94. 2s 6*d*

THE conviction that seeming diversities and differences are but passing and rhythmically varying phases of a fundamental unity led the philosophers of the East to symbolise Life and Death as the continuously flowing Dance of Civa in which construction and destruction are pulsating patterns This conception is designed to teach us that many of the phantom barriers and conventional categories which we erect have no real existence It may be so But to common mortals barriers and categories are a necessity for any mental process which may reasonably be called thought, and it is perhaps because he is so sure that they ought to be neglected that Collum has written such a nebulous and unconvincing essay

New Inventions.

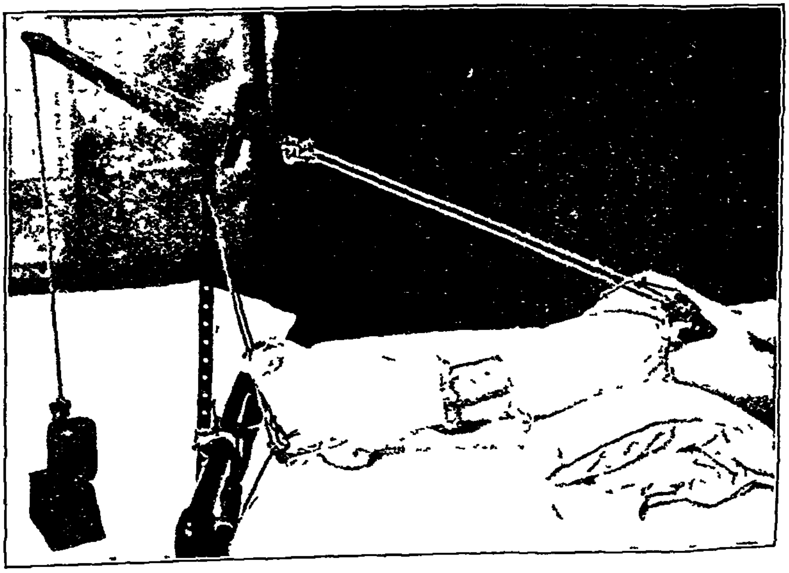
AN INTERRUPTED PLASTER FOR FRACTURES OF THE LEG

THE accompanying photograph illustrates the application of a simple and generally available form of splint for use in the treatment of fractures of the bones of the leg in the middle third, a common type of injury, especially from "run-over" accidents Plaster bandages and the knee-flexion piece of a Thomas splint are the only requirements for fixation

The method of application is briefly as follows:—

The patient is anæsthetised, and the leg cleaned, rubbed with spirit, and powdered, appropriate treatment being carried out for a wound, if such exists, and a dressing applied Before any covering is placed upon the foot or knee, a line is drawn with a skin pencil from the inner border of the patella, vertically upwards on the thigh, in order to indicate the proper alignment—i e, the relation of the great toe to the inner border of the patella, when the knee is covered up Lint, padding, and a few turns of plaster bandage are then applied to the foot and to the region of the knee, which is slightly flexed, a space of 3 inches being left at the site of fracture The flexion piece of the Thomas splint is placed in position and the plaster application continued, loops being made round the limbs of the splint in order to prevent slipping The joints above and below the fracture are thus fully immobilised, and the fragments of the long bones are held in position to within a short distance of the actual site of fracture When the leg alone is affected, a considerable *amount* of wool and a reinforced plaster are applied over the *sole* of the foot, so that the metal cross piece is entirely covered in, and with this form of ambulant splint the patient can be *allowed* out of bed, with the use of crutches, in two or three days For purposes of massage, the plaster can be readily bi-valved by cutting behind the metal side bars

Where the femur and leg bones on the same side are involved, extension is usually a matter of difficulty, but the method described here has been found serviceable in two cases of this type In the first, the leg splint was applied in the manner described, a Thomas splint was then placed in position, with underslinging bandages to the thigh The upper ends of the flexion pieces were rested upon the side bars of the Thomas splint in the usual way, but not clamped, so that traction upon them was effective in extending the femur



The case illustrated is that of a lad of 16 years, who sustained a simple comminuted fracture of the tibia and fibula, and a transverse subperiosteal fracture of the femoral shaft, *while* stopping a run away horse A pillow *under* the thigh was found to give sufficient support at this level, as the extension pull on the upper ends of the metal side pieces preserved the essential *for*ward curve of the femoral shaft, the knee being plastered in flexion

In addition to having led to satisfactory local results, the method has these advantages In compound fractures, local wound treatment does not interfere with fixation Swelling at the level of fracture is not followed by painful pressure and so the plaster can be applied upon the first occasion when reduction is effected The box-splint stage is thus eliminated, and the use of Sinclair's *skate or other* form of traction on the foot has seldom been found necessary The *condition* of the soft parts can be observed throughout, and radiographic inspection is better than in the full plaster Extension to the femoral shaft is simplified incases in which fractures exist above and *below* the knee in the same limb

J. J M SHAW, M D, F R C S Edin,
Surgeon, Leith General Hospital Assistant Surgeon, Royal Infirmary, Edinburgh

The petition to be addressed to Parliament by the National Canine Defence League, with which the Royal Society for the Prevention of Cruelty to Animals is not associated, expresses the opinion that "the dog has of late years been specially selected by vivisectors for extensive and peculiarly revolting and painful experimentation." The same petition speaks of "demonstrations of a prolonged and agonising nature before classes of students." Sir THEODORE COOK, in a letter in the *Times* of March 7th, recalls the fact that on the back of the entry forms of Cruft's Dog Show was printed an imaginary picture representing an operation performed in France about 100 years ago by a man who died in 1855; beneath the picture was displayed the following sentence: "209,014 experiments on living animals were performed during 1925, many of these being upon dogs." Obviously, as Sir THEODORE COOK observes, the uninstructed reader is intended to infer that operations of the kind illustrated in the picture are constantly happening in England to-day. He asks whether Lord BANBURY or Sir ROBERT GOWER knew of any instances of dogs suffering severe pain after recovery from anæsthetics which were not put to death as humanely as the 28,565 dogs destroyed in the Battersea Dogs' Home during the same year. We look in vain in all the mass of antivivisectionist propaganda for any fair admission of the extent to which dogs are protected by the existing law, or of the measures taken (under strict Home Office regulation and inspection) to prevent the infliction of pain. Nothing is said of the elaborate precautions which govern the licensing of the research worker, of the substantial safeguard which insists that his application for a licence shall be signed and countersigned by responsible authorities, of the special certificate which is required if feeding experiments or inoculations are to be done, or of the fact that 95 per cent. of the total number of so called vivisections come within the class covered by this special certificate. Nothing is said of the fundamental restrictions imposed by the Cruelty to Animals Act of 1876, or of the further restrictions made by the Home Office thereafter. Nothing is said either of the additional safeguards (under Section 5 of the Act) whereby experiments on a dog or a cat are even more stringently regulated. Nothing, finally, is said of the profound benefits to the human race which have resulted from the carefully restricted and officially supervised employment of experiments upon animals in the alleviation of human pain and the cure and prevention of human disease. Information in this respect has been issued in publications more accessible to the medical profession than to the general public. Of the technical details of that information the supporters of the Bill may naturally be ignorant, but there is one aspect of experiments upon animals of which every dog-lover should know. The study of distemper may not only help us to understand and repel certain obscure diseases from which mankind suffers, it also holds out the reasonable prospect that, sooner or later, a great menace may be removed from the canine species. The so called Dogs (Protection) Bill will bar the advance of science towards the finding of a remedy. It may not unfairly be given the title of the Dogs (Continuance of Distemper) Bill.

Distemper is but one of many problems for the research worker, but what is the attitude of the supporters of the Bill towards it? Their avowed purpose is the total prohibition of all experiments which may promote the cure and prevention of this disease. Sir THEODORE COOK quotes the chairman of an antivivisectionist meeting held last January as having said that the Field Distemper Council had spent three years "in torturing dogs in the most abominable manner." If this were so, why did not the Royal Society for the Prevention of Cruelty to Animals, which seems itself to be concentrating upon a merely antivivisectionist policy, prosecute the offenders to conviction? In the debate on Lord Banbury's Bill in 1925 Lord LAMBOURNE, who supported the Bill, found it necessary to concede that the Bill might be amended so as to make an exception in favour of distemper experiments. Logic we have learned not to expect in the discussion of this subject, but, if distemper experiments are admitted to be unobjectionable, what becomes of the principle of the Bill?

Annotations.

"Ne quid nimis."

THE LISTER DOCUMENTS

DURING the forthcoming Lister centenary celebrations the cabinet containing Lord Lister's instruments, manuscripts, diplomas, and other papers, which occupies a position of honour in Room I. of the Museum of the Royal College of Surgeons of England will be a centre of peculiar interest. A noble piece of furniture, the cabinet was the late Sir Rickman Godlee's tribute to the memory of his illustrious uncle. In it behind glass are displayed Lister's instruments and the same collection is continued in another case against the neighbouring wall, which forms a companion collection to the relics of John Hunter in a similar museum case close by. Lister's documents, however, are only partially visible to the public eye, and a number of them, beautifully bound and cared for by his nephew, are locked up in the cabinet drawers. Very interesting among the latter are a number of diagrams of bacteria and general pathology, and also the rolls of common paper, some half-dozen in number, on which over 40 years ago Lister caused a horse, a dog, and a rabbit to place on record the relative pressures of blood in systole and diastole. The elaborate conclusions which he then reached are fully set out in Vol. III. of his "Common Place Book," a work in four volumes here preserved behind a glass door. These books contain the record of the successive experiments in which the great surgeon engaged. They are largely in the handwriting of Lady Lister, who laboured with devotion in her husband's behalf till death cut her off, sadly and suddenly, when the pair were on their travels in March, 1893. Sir Rickman Godlee, in his biography of Lister, has painted a vivid picture of the manner in which these manuscripts were written, often long after midnight, owing to Lister's unwillingness that anything should be set on record till he himself felt sure of it. The illustrations, almost all by the investigator, are fine examples of delicate draughtsmanship, and many who see them will be surprised to learn that he was an anatomical artist of such a high order. The most important volume in the collection under discussion is without doubt the slim folio labelled by Godlee "Notes and Drawings Suppuration Lister *1851-1907*." This is the very scripture of Listerism, a treasure beyond price.

Of the other MSS. in the collection there may be mentioned also five letters from Pasteur, in one of which the famous Frenchman speaks of having heard dimly during many years of his English colleague's special investigations and testifies to his own interest in them. He writes as a sick man, his head hanging painfully in sympathy with his semi-paralysed side. The originals of Lister's principal courses of lectures in Glasgow, Edinburgh, and King's College are also

THE RHEUMATIC HEART.

THE failure of even a rigid system of rest to stem the progress of rheumatic carditis once it has manifested itself is a disappointing fact to which attention was last year drawn by Prof J A NIXON[1] after careful study of children warded in the Southmead Hospital at Bristol They do not dispute the observation made by FRANCIS SIBSON in 1877 that cases of rheumatic fever are less often attacked by rheumatic carditis when kept strictly at rest This dictum is now regarded as definitely proven, and indeed forms the basis of the modern treatment of acute rheumatism ; but enthusiasts have hoped that where rest has preceded as well as followed signs of a pathological state of the heart, complete restoration of function might ultimately ensue Dr CAREY COOMBS in a Chadwick lecture, which we print on another page, quotes hopefully evidence of " a surprising number of apparent recoveries, even among children whose hearts have undoubtedly been damaged " The observations made at Southmead do not encourage this optimism Even if the patient is actually in a hospital bed when the earliest signs of cardiac involvement are detected, Dr NIXON and his co-workers do not now believe that its progress can be arrested or that however long the child is kept at rest a really sound heart will result

If further experience confirms this distressing prophecy, it is the more urgent to seek means to prevent the primary disease Dr NIXON points out that in a sense this is being achieved, relatively at least, by means of some unknown factor in the life of the upper classes, since rheumatism hardly exists in our great public schools In an introduction to a report on Social Conditions and Acute Rheumatism, which we summarise on p 562, Dr G F STILL confirms the rarity of this condition among well-to-do patients ; indeed, this well-recognised class-incidence of rheumatic fever, as one of the few things certainly known about the disease, gave hope to the investigators working in London and Glasgow under the auspices of the Medical Research Council that even in the absence of any secure knowledge of its causation, a careful study of environment might indicate means for prevention or at least reduction But when the hospital patients under investigation were divided into three classes it was found, contrary to expectation, that a comparatively small proportion of the rheumatic cases came from families belonging to the lowest class, where the children have insufficient and unsuitable food, clothing, accommodation, and outlet, and suffer also from lack of discipline, regular meals, and sleep Nor did inquiry into heredity yield much clearer results In 260 out of the 721 rheumatic families examined—or 31 per cent —there were, it is true, one or more persons in addition to the rheumatic patient suffering from rheumatism The general picture presented by these family histories, however, is that of rheumatism attacking several members of one generation rather than of the disease being handed down from one generation to another, though diagrams of some 300 family trees set out on pages 23 to 30 of the report suggest that there is some hereditary predisposition to attack in rheumatic families The infrequency of rheumatism in the four Poor-law residential schools studied—1 per cent against some published statistics of 3 6 per cent in elementary schools—lends no support to a theory of heredity, while it does confirm the idea that a high standard of food, clothing, housing, and general care has some influence in preventing the disease Dr STILL does not ignore the possibility, however, that the comparatively sequestered life of these children in a community which has little contact with the outside world may involve less exposure to infection This view would imply that rheumatism may be conveyed by infection, which assumption is difficult either to accept or to reject The incidence of rheumatism among those in close contact with a known sufferer was high enough to suggest to Dr STILL and his co-workers the possibility of transmission of the disease, though no conclusive evidence of contagion from case to case has been obtained Of 382 persons sleeping in the same room as 192 rheumatic children, 59, or 15 per cent, were rheumatic In the light of these findings the cautious family doctor may consider it his duty to advise, at least, some degree of isolation, thereby laying himself open to unanswerable questions about periods of infectivity and incubation, and possibly even to reproach for previous negligence The results of this careful survey of rheumatic disease will thus bring little practical help in the solution of the problems involved If some doubt has been thrown on the evil portent of such well-established bogeys as tonsillitis and damp houses, a new source of anxiety has been raised It would be unsafe to belittle the value of even slight indications of a way to prevent a disease whose sequelæ may be so severe, but the evidence is happily not sufficient at present to impose the boredom of quarantine on the patient during the long recumbent period which modern treatment exacts

The ingenuity and tact shown by the group of workers conducting this investigation in devising and carrying out inquiries as to family incidence, association with sore-throat, and with various social and housing conditions deserved a more dramatic outcome The inquiry has given provisional answers to many interesting questions, even if it has failed to give any clear view of the lines on which prevention should be sought We must reluctantly agree with the statement made by the Medical Research Council in a preface to the report—that it seems improbable that much further progress can be made until the causative agent of acute rheumatism is identified

MEDICAL RESEARCH IN DANGER

THE Dogs (Protection) Bill, now in print and awaiting its chance of discussion in the House of Commons. is framed in language identical with that of Lord Banbury's Bill rejected in 1925 It proposes that it shall be " unlawful to perform any experiment of a nature calculated to give pain or disease to any dog for any purpose whatsoever, either with or without anæsthetics," and that no such experiments shall be licensed If these proposals were to become law, they would place an insuperable and permanent barrier across some of the chief paths of medical and veterinary research Evidently support for the Bill is being canvassed by means of the old prejudices, and is based upon the old misunderstandings and distortions of the truth It is therefore necessary to repeat once again what has been said before in opposition Many supporters of the Bill undoubtedly think of vivisection as the dissection of a living animal while it is fully conscious of pain , they undoubtedly believe that vivisection in this sense can be, and is, freely practised by medical research workers without restraint under the existing law , they are convinced that fresh legislation is essential in order to protect live dogs from the callous and inhuman infliction of pain On no other basis can anyone explain the statements made in support of the Bill.

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[1] Bristol Medico-Chirurgical Journal, 1926, vol. xliii., p 96.

The petition to be addressed to Parliament by the National Canine Defence League, with which the Royal Society for the Prevention of Cruelty to Animals is not associated, expresses the opinion that "the dog has of late years been specially selected by vivisectors for extensive and peculiarly revolting and painful experimentation.' The same petition speaks of "demonstrations of a prolonged and agonising nature before classes of students." Sir THEODORE COOK, in a letter in the *Times* of March 7th, recalls the fact that on the back of the entry forms of Cruft's Dog Show was printed an imaginary picture representing an operation performed in France about 100 years ago by a man who died in 1855, beneath the picture was displayed the following sentence: "209,014 experiments on living animals were performed during 1925, many of these being upon dogs." Obviously, as SIR THEODORE COOK observes, the uninstructed reader is intended to infer that operations of the kind illustrated in the picture are constantly happening in England to-day. He asks whether Lord BANBURY or Sir ROBERT GOWER knew of any instances of dogs suffering severe pain after recovery from anæsthetics which were not put to death as humanely as the 28,565 dogs destroyed in the Battersea Dogs Home during the same year. We look in vain in all the mass of antivivisectionist propaganda for any fair admission of the extent to which dogs are protected by the existing law, or of the measures taken (under strict Home Office regulation and inspection) to prevent the infliction of pain. Nothing is said of the elaborate precautions which govern the licensing of the research worker, of the substantial safeguard which insists that his application for a licence shall be signed and countersigned by responsible authorities, of the special certificate which is required if feeding experiments or inoculations are to be done, or of the fact that 95 per cent. of the total number of so-called vivisections come within the class covered by this special certificate. Nothing is said of the fundamental restrictions imposed by the Cruelty to Animals Act of 1876, or of the further restrictions made by the Home Office thereafter. Nothing is said either of the additional safeguards (under Section 5 of the Act) whereby experiments on a dog or a cat are even more stringently regulated. Nothing, finally, is said of the profound benefits to the human race which have resulted from the carefully restricted and officially supervised employment of experiments upon animals in the alleviation of human pain and the cure and prevention of human disease. Information in this respect has been issued in publications more accessible to the medical profession than to the general public. Of the technical details of that information the supporters of the Bill may naturally be ignorant, but there is one aspect of experiments upon animals of which every dog-lover should know. The study of distemper may not only help us to understand and repel certain obscure diseases from which mankind suffers, it also holds out the reasonable prospect that, sooner or later, a great menace may be removed from the canine species. The so-called Dogs (Protection) Bill will bar the advance of science towards the finding of a remedy. It may not unfairly be given the title of the Dogs (Continuance of Distemper) Bill.

Distemper is but one of many problems for the research worker, but what is the attitude of the supporters of the Bill towards it? Their avowed purpose is the total prohibition of all experiments which may promote the cure and prevention of this disease. SIR THEODORE COOK quotes the chairman of an antivivisectionist meeting held last January as having said that the Field Distemper Council had spent three years "in torturing dogs in the most abominable manner." If this were so, why did not the Royal Society for the Prevention of Cruelty to Animals, which seems itself to be concentrating upon a merely antivivisectionist policy, prosecute the offenders to conviction? In the debate on Lord Banbury's Bill in 1925 Lord LAMBOURNE, who supported the Bill, found it necessary to concede that the Bill might be amended so as to make an exception in favour of distemper experiments. Logic we have learned not to expect in the discussion of this subject, but, if distemper experiments are admitted to be unobjectionable, what becomes of the principle of the Bill?

Annotations.

"Ne quid nimis."

THE LISTER DOCUMENTS

DURING the forthcoming Lister centenary celebrations the cabinet containing Lord Lister's instruments, manuscripts, diplomas, and other papers, which occupies a position of honour in Room I of the Museum of the Royal College of Surgeons of England will be a centre of peculiar interest. A noble piece of furniture, the cabinet was the late Sir Rickman Godlee's tribute to the memory of his illustrious uncle. In it behind glass are displayed Lister's instruments and the same collection is continued in another case against the neighbouring wall, which forms a companion collection to the relics of John Hunter in a similar museum case close by. Lister's documents, however, are only partially visible to the public eye, and a number of them, beautifully bound and cared for by his nephew, are locked up in the cabinet drawers. Very interesting among the latter are a number of diagrams of bacteria and general pathology, and also the rolls of common paper, some half-dozen in number, on which over 40 years ago Lister caused a horse, a dog, and a rabbit to place on record the relative pressures of blood in systole and diastole. The elaborate conclusions which he then reached are fully set out in Vol. III. of his "Common Place Book," a work in four volumes here preserved behind a glass door. These books contain the record of the successive experiments in which the great surgeon engaged. They are largely in the handwriting of Lady Lister, who laboured with devotion in her husband's behalf till death cut her off, sadly and suddenly, when the pair were on their travels in March, 1893. Sir Rickman Godlee, in his biography of Lister, has painted a vivid picture of the manner in which these manuscripts were written, often long after midnight, owing to Lister's unwillingness that anything should be set on record till he himself felt sure of it. The illustrations, almost all by the investigator, are fine examples of delicate draughtsmanship, and many who see them will be surprised to learn that he was an anatomical artist of such a high order. The most important volume in the collection under discussion is without doubt the slim folio labelled by Godlee "Notes and Drawings: Suppuration. Lister. 1851-1907." This is the very scripture of Listerism, a treasure beyond price.

Of the other MSS. in the collection there may be mentioned also five letters from Pasteur, in one of which the famous Frenchman speaks of having heard dimly during many years of his English colleague's special investigations and testifies to his own interest in them. He writes as a sick man, his head hanging painfully in sympathy with his semi-paralysed side. The originals of Lister's principal courses of lectures in Glasgow, Edinburgh and King's College are also here, together with five folios containing complimentary addresses signed by the greatest names in science and medicine. The degrees and diplomas alone number some 36 Unlike John Hunter, unlike Shakespeare himself, this mighty pioneer of modern methods in surgery has been "documented" to perfection None of his manuscripts seem to be missing, and all are religiously cared for and preserved

CAPILLARY PERMEABILITY

THAT the capillary wall is normally in a condition of delicately adjusted differential permeability follows from the facts that the volume of the blood is kept constant, and that the nutrition and excretion of the tissues are adequately performed The normal endothelial cell lets water through freely and, as far as we know, offers only a partial obstacle to simple molecules of dissolved substances On the other hand, it is nearly impermeable to proteins, and it is changes in this quality which have for long been familiar, transudates contain little coagulable protein, while exudates contain much, and the amount of proteid is a guide to the permeability In more recent times evidence has accumulated that gross alterations in permeability may affect the volume of the circulating blood, chlorosis is (or perhaps we should now say "was") presumably essentially an error in the mechanism which normally keeps a certain amount of the free fluids of the body inside the blood-vessels and leaves the rest (a variable quantity) outside There are more satisfactory reasons for believing that the depletion of the blood volume in secondary shock is directly due to the increased permeability of the endothelial cells caused by the products of tissue destruction, and in particular by histamine and histamine-like bodies The efficacy of histamine in producing this change locally is beautifully demonstrated by pricking through a drop of a highly dilute solution into the skin; a wheal appears almost at once To find out more about this elusive mechanism and how it is affected in disease is evidently desirable and several explorations along different lines have recently been made We have already drawn attention[1] to the series of papers which have been published in *Heart* by Sir Thomas Lewis and his co-workers at University College Hospital on the reaction of the skin to injury and their conclusion that the production of a local œdema with the formation of wheals is in the main due to the setting free of histamine (or some similar body with a like action) from the tissues injured by the provocative stimulus Everyone reacts in much the same way, but the amount of rubbing which is necessary to evoke the reaction varies so much in different people that those who respond most easily may not unreasonably be said to have a disease—dermographia Parallel inquiries on rather more complicated lines have been made by Dr W F Petersen of Chicago[2] who seeks to obtain some quantitative measure of what may be termed the inflammability of the skin in the manner of Gansslen by putting on a standard cantharidin plaster, observing the time taken for a blister to form and then determining the percentage of proteins in the blister fluid, and comparing it with the percentage in the blood The ratio blister protein/serum protein gives the "permeability index," and this ratio divided by the blistering time in hours brings the inflammatory vascular response into relation with the permeability The method obviously measures a very complex process which it cannot completely dissect into its components, but Dr Petersen and his colleagues have obtained results which suggest that it will prove informative Thus in general, capillary permeability varies inversely with blistering time as one would expect But in decompensated arterio-sclerosis high permeability may be found with a prolonged blistering time, which is interpreted as spasm of the arterioles with a damaged endothelium On the other hand, Graves's disease shows always a short blister time, and the permeability index may vary a good deal In skin diseases such as dermatitis herpetiformis and eczema, there is everywhere a short blistering time, and the percentage of protein in the blister fluid is nearly as high as in the blood serum instead of about three-quarters as much

THE LATE SIR FELIX SEMON

WE have received from Dr Emil Mayer, the well-known American laryngologist, a letter with reference to the autobiography of Sir Felix Semon, which was reviewed recently in our columns (THE LANCET, 1926, ii., 959) The purport of the letter is to call attention to certain matters omitted in the autobiography and not added by the editor, Dr H C. Semon, who wishes that attention should be called in medical circles to the circumstances Both the autobiography and the various obituary articles which followed upon Sir Felix Semon's death alluded to the splendid work done by him when he founded the *Internationales Centralblatt fur Laryngologie* in 1884, and Dr. Mayer, one of the first collaborators in this work, describes the machinery adopted, explaining why for business reasons it was printed in the German language It was at one time projected that publication should appear simultaneously in German, French, and English, but on pecuniary grounds, although collaboration was gratuitous, this ambitious design was dropped. Prof Mayer writes —

"With his passion for order, Semon issued a prospectus for the new journal and the plan made then was strictly adhered to during the entire 25 years in which he was editor-in-chief It was to be an index-medicus as complete as possible, under the direct editorship of the one chosen to represent his country, who signed his own name to each contribution noticed The collaborator used his own judgment as to the length of his abstract Facts known to laryngologists in articles written for the information of general practitioners were marked 'nothing new' When comment was deemed advisable by the collaborator it was added in brackets It is of interest to note that writers approved of this method of a 'chiel amang ye takin' notes,' and frequently expressed their appreciation of the criticism saying that they were thus made more careful in making statements In the 16 years of his connexion with the *Centralblatt*, this writer knows of no single complaint of unfairness in the comments At the end of the year a summary of papers abstracted was published giving the number from each country America with its 200 monthly journals always headed the list Reports of the transactions of special societies and reviews of new books were also part of the duties of the co-editor It was of the *Centralblatt* that Sir Felix said 'Journals of reference exist in order that the reading public should know of articles published presenting a resumé of their contents, but not to make the reading of the originals unessential' After 25 years of editorship, Sir Felix could truly say that the Journal had become the centre of the interests of laryngology throughout the world"

Dr Mayer's connexion with the *Centralblatt*, we learn from his letter, began by association with the first American editor, Prof Lefferts, in 1898, and when he had been a co partner in the scheme for ten years he conceived the idea that the twenty-fifth anniversary of the founding of the symposium would be a fitting opportunity for all associated with the work to present the founder with a lasting memento of the respect and the loyalty of his colleagues

"I procured a list" he writes, 'of all past and present collaborators and sent a confidential letter to each, asking if they approved, that each send me $5 to procure a suitable gift to the man we revered as chief editor The responses were prompt and within a short time letters warmly endorsing the project were sent me with the amount requested by 35 of the co-editors, including the publisher, who was permitted to participate at his own request The choice of the memento was that of a silver box of the exact size and shape of a bound volume of the *Centralblatt*, the outer lid being an exact copy of the style and wording of a cover of the monthly number, its wording transposed to fit the purpose The silver box was made by Tiffany and Company, of New

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[1] THE LANCET, Jan 1st, 1927, p 38

[2] Archives of Internal Medicine, vol xxxviii, p 663, vol xxxix, p 19

York, following their beautiful design, and the wording was that of Prof A. Rosenberg, of Berlin It read thus (translated)

25th Year January 1909
INTERNATIONAL CENTRALBLATT
FOR
LARYNGOLOGY RHINOLOGY
AND ALLIED SCIENCES
From the former and present collaborators
L Bayer (Brussels) A J Brady (Sidney) A Bronner (Bradford) H Burger (Amsterdam) O Chiari (Vienna) J Donelan (London) G Finder (Berlin) B Fraenkel (Berlin) H Hecht (Munich) P Hellat (St. Petersburg) G Jonquiere (Bern) Ino Kubo (Fukuoka) J Katzenstein (Berlin) F Klemperer (Berlin) A Kuttner (Berlin) W Landgraf (Berlin) G M. Lefferts (New York) N Lunin (St Petersburg) P McBride (Edinburgh) Emil Mayer (New York) Edmund Meyer (Berlin) E J Moure (Bordeaux) E V Navratil (Budapest) E Oppikofer (Basel) A Rosenberg (Berlin) E Schmiegelow (Copenhagen) O Siefert (Wurzburg) R Semon (Munich) A V Sokolowski (Warsaw) E Stangenberg (Stockholm) A. G Tapia (Madrid) Logan Turner (Edinburgh) E Waggett (London) C Zarniko (Hamburg) and the publisher
To the Editor
SIR FELIX SEMON
London
In love and respect, as a token of their appreciation of his highly valued services in the cause of Laryngology and in grateful recollection of the manifold courtesies extended by him to each and every one of them.
Berlin 1909
Published by August Hirschwald
N W Unter den Linden 68

This beautiful memento came as a complete surprise to Sir Felix and was most joyfully and gratefully received by him He stated that he would always cherish it and that it would be kept in his family for all time ”

The presentation was made without knowledge that it synchronised with Sir Felix Semon's retirement, while the episodes connected with the attitude of his successor need no repetition in these columns The attempt under the evil influence of militarism to deprive Sir Felix Semon of his international reputation as the founder of the *Centralblatt* served only to enhance that reputation among those who consider that science does not acknowledge geographical boundaries

BENIGN ADENOMA OF THE KIDNEY

ACCORDING to Dr E Starr Judd and Dr Harold E Simon,[1] who report an illustrative case observed by them at the Mayo Clinic, and give a review of the literature, small benign adenomata of the kidney are not uncommonly found at autopsy Their size varies from a few millimetres to 3 or 4 cm in diameter, they are frequently multiple, and they may be found in one or both kidneys, but it is unusual for them to attain such a size as to cause symptoms of any severity Three histological types of benign adenoma of the kidney may be described The papillary form is the most common and is found in its purest and most elementary form in the smaller tumours This type of structure also predominates in the larger tumours, in which, however, it is usually combined with one or both of the other types The second type which is the next most frequent is the tubular or canalicular While the tubules differ in character and appearance in the different tumours they are of fairly uniform appearance in a given case The connective tissue separating them is usually scanty and glomeruli are not found The third type is the alveolar adenoma described by J Albarran, composed of lobules of alveoli, whose cells often have a high fat content, giving them a vesicular appearance Dr Judd and Dr Simon have little doubt that these tumours arise from the renal parenchyma, and though their relationship to malignant growths of the kidney has not been established, it is possible that they may become malignant The present case was that of a woman, aged 51, who had suffered from intermittent attacks of pain and hæmaturia for the last 11 years At first the attacks had been at intervals of from two to three months, but recently had become more frequent For several years she had noticed a mass in the right side of the abdomen, and lately it had increased in size Examination showed a large mass extending from the right costal margin to the crest of the ilium and across the middle line of the abdomen Cystoscopy showed a normal bladder Ureteral catheters were passed without difficulty, and the differential phenol-sulphonephthalein test yielded about one-third the normal return from the right side and a normal return from the left The left pyelogram was negative, while the pyelogram of the right pelvis showed a rather indistinct outline A diagnosis of right renal tumour was made, and on exploratory incision an enormous tumour was found arising from, and intimately associated with, the right kidney Nephrectomy was performed and the patient made a rapid recovery. Histologically the tumour was found to consist of papillary and tubular structures in about equal proportions

SHOCK AND COLLAPSE

IN his Hunterian Lecture to the Royal College of Surgeons of England on Feb 28th Mr Zachary Cope performed a salutary task in drawing attention to the vague state of the common understanding of the terms “ shock ” and “ collapse ” He attempted a more precise definition of the terms, and at the same time justly emphasised the variability of the clinical manifestations of these states. In particular he drew attention to the importance of the slow pulse-rate which sometimes accompanies shock and has often misled observers into a sense of false security A slow pulse-rate is a grave sign if associated with a low blood pressure, estimation of which is easily made but often neglected Mr. Cope showed, however, that even lowering of the blood pressure is not a constant sign The late war afforded all too many opportunities for observing shock, and the stimulus of war needs provided most of the scientific evidence on which our knowledge of shock is based. Mr Cope now seeks to apply the principles thus learnt to the fuller understanding of the surgical emergencies of civil life, especially perforations of a gastric or duodenal ulcer He gave point to his remarks by quoting the case of a patient who was operated upon so quickly after the perforation of a duodenal ulcer that the combined shocks of perforation and of operation caused his death The mysteries of “ latent shock ” and “ delayed shock ” were intensely investigated during the war, notably by Dale, Bayliss, and Cannon, but the theories then formulated have not provided a final solution Mr Cope's plea for recognition of the importance of the clinical observation of surgical emergencies gained much force from the actual cases which he described He did not, for the present, enter upon discussion of the principles to be observed in treating the condition of shock, but this can only follow on further elucidation of the factors that are at work in its production More research, in fact, by physiologist and clinician is still required

CHRONIC ARTHRITIS

IN a paper[1] based on the critical study of 1100 cases R Pemberton and E G Peirce give a more hopeful opinion of the treatment of chronic arthritis than is usually held Their patients comprised 400 soldiers on active service and 700 civilians, more than two-thirds of the latter being women Treatment included removal of infected foci, dietetic and physiotherapeutic measures, and injections of non-specific protein and specific vaccine Each case was treated on its merits and no attempt was made to exploit any particular line of treatment Of the army cases

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[1] Surgery, Gynecology, and Obstetrics, February, 1927

[1] Amer Jour of Med Sci , 1927, No 1, clxxiii , 31

77 per cent recovered completely and only 4 per cent were unimproved Of the civilian cases, which included the more advanced types, 24 per cent. recovered completely and 9 per cent were unimproved Demonstrable foci of infection were present in 70 per cent, and in others foci had been removed previously. Dental infection was present in 54 per cent. and tonsillar infection in 31 per cent, urogenital infections played but a small part Mere removal of foci of infection was insufficient to cause improvement In some cases successive focal infections caused by different organisms occurred whilst the patients were under treatment, and in other cases tissues such as the tonsil, harbouring foci, were seen to become nearly or quite normal following improvement in the arthritis from a well-planned regimen This suggests that focal infection may often be the result of a systemic imbalance as well as the cause of it Many of the cases could be classified into the proliferative and degenerative types of Nichols and Richardson, which correspond roughly to the rheumatoid arthritis and osteo-arthritis of English authors, but many could not be classified It would have been more helpful if a closer classification had been attempted, for a study of the age of onset, sex, and joints involved suggests that most of the cases were of the infective fibro-arthritic type involving only one or two joints, and it is the general experience that this type responds very well to treatment and that complete cure can be obtained It is doubtful if joints attacked by true rheumatoid arthritis can ever be restored to normal, and the same is true of osteo-arthritis Although Pemberton and Peirce consider that there is evidence of a common physiological disturbance underlying several clinical varieties of the disease it is perhaps more probable that under the heading of chronic arthritis are included several distinct diseases differing in their ætiology, pathological features, and response to treatment There is but little resemblance between the rheumatoid arthritis of young women with its profound metabolic disturbances, the osteo-arthritis of the hip in elderly persons, and the infective arthritis of the knee or wrist which attacks mainly the soft structures without bony involvement More progress may be made when these types can be more clearly differentiated and separately studied

NATURE OF RABIES AND THE NEGRI BODIES

Ever since the first description of the intracellular formations now universally known as Negri bodies, these bodies, whose appearance in the large cells of the central nervous system and in particular in those of the cornu ammonis is the chief histological finding in hydrophobia, have been of acute interest to pathologists An unending argument has raged over their nature, the partisans of one theory declaring them to be parasites, whilst their opponents maintain that they are nothing more than the results of degeneration Both sides, however, have agreed that their appearance is characteristic and pathognomonic of this disease The latest contribution to the subject comes from C Levaditi, S Nicolau, and Mlle R Schoen of the Pasteur Institute[1] These workers have already carried out very extensive researches into encephalitis lethargica and herpes, and the spontaneous (microsporidial) encephalitis of rabbits, and it has been long held by Levaditi that the first two of these diseases have much in common with vaccinia, poliomyelitis, and rabies, he believes that all are due to filtrable viruses and that all may show, under different conditions, affinities for both the epidermis and the central nervous system Turning his attention now to rabies this fruitful investigator has attacked the problem of the nature of the virus and produced a voluminous piece of work After pointing to the tinctorial and morphological similarities between the Negri bodies and the cysts of certain microsporidia, the theory is developed that the Negri bodies represent a stage—pansporoblasts—in the life-history of a protozoal parasite, the units of which at other times in its life-history are extremely small and capable of traversing bacterial filters It is in this spore stage that the virus is eliminated by the salivary glands of a rabid animal and infects the bitten subject The parasite reaches the central nervous system by means of the nerve trunks and pullulates within the cells of the brain It must be conceived that all portions of the central nervous system become infected, since all are virulent, but that the development of the organism is more favoured in certain sites than in others, thus the medulla and pons are more intensely invaded and show the infection at an earlier stage than do other parts of the brain, and their cells, moreover, undergo histological degeneration; whereas the cortex cerebri, Purkinje cells, and the cells of the cornu ammonis, though infected, retain their histological integrity and show little or no degeneration These are the very sites in which the Negri bodies develop, an apparent paradox which is explained by Levaditi and his colleagues by the assumption that it is only in the more resistant cells, whose morphological and physiological integrity is preserved for the longest time, that the pansporoblasts are formed, only the vegetative phase of the organism existing where its destructive effects are greater

This thesis would give a plausible explanation to the disturbing fact, which has so often been used as an argument against the acceptance of the living nature of the Negri bodies, of their absence in *virus fixe*—the brains of rabbits succumbing to the inoculation of material of artificially exalted virulence, and hence presumably most rich in the infecting agent If Levaditi's view is correct the *virus fixe* produces so profound and progressive an infection that the conditions of cell resistance, necessary for the production of pansporoblasts, are never realised Numerous experiments are cited which give force to this argument It has been shown in the progressive exaltation of virulence which goes to the making of *virus fixe* that, as the incubation period shortens, the size and number of Negri bodies diminish pari passu until when the stage of maximum virulence is reached—i e, the *virus fixe* of Pasteur—they can no longer be found And it has also been shown in this connexion that various strains of street virus differ greatly, as judged by the criterion of the Negri bodies, in their ability to become converted into *virus fixe* In some this is readily accomplished in a few passages, but in others it seems impossible to carry out The transformation into *virus fixe* is regarded by these authors as a mutation (the right to use this term may be questioned, as from their experiments the transformation is obviously gradual), which results in a definite loss on the part of the organism of the ability to reproduce the pansporoblasts stage; the change, at all events, is irreversible and by no experimental manœuvres can this virus be made to give rise to Negri bodies In the view of Levaditi and his colleagues this mutation is associated with an increased affinity of the virus for the central nervous system It therefore follows that the material used in the antirabic inoculation of man is essentially of a highly virulent character but the lack of danger in its use is believed to be due to the dilution of the germs present in the preparations, and to the fact that the tissue into which the virus is introduced is little favourable for its further development in this newly acquired specialised form

The general view put forward is by no means new, as the authors admit, while many claims towards the elucidation of the life-history of the rabies organism have from time to time been made Noguchi at one time announced its successful cultivation by the procedures employed in the investigation of the globoid bodies of polio myelitis, and Y. Manouelian and J. Viala[2] claim to have demonstrated the microsporidial characters of the virus and certain of its evolutive phases in the tissues. Levaditi and his collaborators have put forward a reasoned hypothesis which explains many of the difficulties in the way of the general acceptance of the Negri bodies as representing a visible phase of the parasite and their view is supported by an abundance of ingenious experimental work. They propose for the organism the name of *Glugea lyssæ*. Whilst themselves convinced that their theory is correct and offering serious evidence in support thereof, they do not pretend to have furnished proof and avow their complete ignorance of the larger part of the life-cycle of the organism of which they claim to have demonstrated a part.

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[1] Recherches sur la Rage C Levaditi, S Nicolau, and Mlle. R. Schoen, Annales de l'Institut Pasteur, vol xl, No 12, December, 1926

SCIATIC PAIN

THE Lady Jones Lecture of the University of Liverpool was delivered on Thursday, March 10th, in the Medical School of the University by Dr. Vittorio Putti, Professor at the Rizzoli Orthopædic Institution, Bologna, and formed a clear and in some directions novel disquisition upon the pathogenesis and treatment of sciatica. He pointed out that in the middle of the eighteenth century Domenico Cotunio was the first to recognise that a clinical entity often had to be dealt with under the name of sciatica, the next step towards diagnosis being taken by Charcot who drew attention to the association of sciatica with vertebral deformity and Brissot who, working on the same lines, introduced the term sciatic scoliosis. But regarding sciatica as a symptom, save when the pain is due to direct involvement of the nerve by known pathological processes, he insisted that such sciaticas were not to be confused with rheumatic sciatica—so called from its assumed causation; and the ætiology of this common form he proceeded to discuss entitling it "essential sciatica." It was, he held, being cleared up by modern inquiry, and while there was no difference between pain originating in the spinal cord, in the peripheral nerves or in the sympathetic, the patients' descriptions, which had to be relied upon, introduced an uncertain diagnosis. Hence he made no critical examination of the theories in regard to localisation of pain, but concentrated on that factor in the causation which had attracted so much recent attention—namely, the vertebral element. The idea is not new that a nerve may be irritated in the canal or foramen which it traverses. Long ago it was recognised that many types of trigeminal neuralgia, facial, supra scapular and Arnold's occipital nerve neuralgia as well as ulnar and radial neuralgias, are brought about by mechanical irritation of the nerve trunk in the bony foramina or osteoperiosteal canals. Sicard, Prof. Putti reminded his audience, renamed these conditions "nervodocitis," but Goldthwait, an orthopædic surgeon in Boston, U.S.A., made the first investigation of the whole problem from the anatomical and mechanical aspects upon which mud modern work is founded. A striking result of that work, however, proved fruitless. In the intervertebral foramen between the fifth lumbar and the first sacral runs the fifth root of the lumbro-sacral plexus, a root which is the principal constituent of the sciatic nerve.

It was conjectured that removal of the transverse process of the fifth lumbar vertebra might bring relief, but no such fortunate result occurred. But the lecturer pointed out that none the less cases of sciatica show one constant factor, the association of pain with anatomical alterations or functional disturbance of the lumbar spine. He described his personal investigations, especially with the assistance of X rays into various deformities of the spine, a study which he had commenced 15 years ago, when he published some of his results. He warned his audience that investigation of the intervertebral foramina did not tell the whole story, for as well as the vertebral canal the funiculus must be considered. He summarised the latest work of Bonniot and Forestier by pointing out that "the fourth and fifth lumbar nerves possess the longest funicular portion of those which constitute the lumbo-sacral plexus—i.e., they take the longest course through intervertebral foramina, while the funicular portion of these nerves, unlike the intra spinal portion, does not lie within the arachnoid, but is only clothed by dura mater and is not bathed in cerebro-spinal fluid. Around the veniculous plexus there is a very rich venous plexus which is much influenced by mechanical conditions outside the funiculus. The absence of arachnoid, and therefore of a protective layer of fluid, exposes the funiculus to outside mechanical influences such as do not affect the root, while the surrounding venous plexus puts it at the mercy of any congestion and stasis that may occur in the neighbourhood from many causes." Here, then, is the critical region, and it is here that the importance of X ray examination is so obvious, but only if a clear interpretation can be put upon the evidence. No progress, Prof. Putti thinks, could have been made in the elucidation of many obscure problems, if X rays had not convinced surgeons that idiopathic or "essential sciatica" is synonymous with spinal arthritis. In the latter half of his lecture he supported the thesis with schematic figures and original radiograms.

ULTRA-VIOLET RADIATION AND THE EYE.

IN an article in the *British Journal of Ophthalmology* for February, entitled An Ophthalmic Radiation Lamp, with a Note on its Diagnostic and Therapeutic Applications, Mr. W. S. Duke-Elder of the National Institute of Medical Research and the Ultra-violet Clinic at Moorfields Hospital, issues a warning which is probably needed. It cannot be over-emphasised, he says, that despite the deplorably unfortunate attention of the lay press, ultra-violet light is not a universal panacea. The phototherapist of the eye should certainly be a competent physicist as well as a competent ophthalmologist, since dangers as well as benefits may follow the use of the new method. Suitable apparatus can be used with good effect in cases of "blepharitis, chronic conjunctivitis, corneal ulcers, recurrent, marginal, and hypopyon ulcers, recent corneal opacities, phlyctenular keratitis, tuberculous keratitis acne, and some cases of episcleritis." All these, however, are diseases of the external coat of the eye or its adnexa, and Mr. Duke-Elder is of the opinion that local phototherapy is contra-indicated in diseases of the inner eye, with the exception of those cases of iritis showing nodules on the anterior surface of the iris. The chief danger is that the incidence of radiant energy of any wave-length on the lens may be a factor in the causation of cataract. The heat rays are the most dangerous in this respect, but Mr. Duke-Elder believes that ultra-violet light may also be hurtful if it is focused on a lens predisposed to pathological change. The "treatment" of cataract by ultra-violet light has, he says, been carried out in some quarters; but "those results which have come under my observation might lead me to suggest it as a method for the maturation of cataract." The sentence with which he closes we will quote in full for it should be pondered by any who are inclined to dally with non-operative cures for cataract. "The coagulation of protein is an irreversible chemical change. It seems not unreasonable to hope that in the future when our knowledge of this change and the factors causing it has been more fully developed, it may be possible to prevent its incidence or to delay or arrest its progress, but to set out to 'cure' cataract in the sense used above by any means, medical or physical, is quite unjustified." Mr. Duke-Elder's paper incidentally lends support to our plea (THE LANCET, Feb 26th, p 450) that manufacturers of ultra-violet apparatus should be discouraged from the unrestricted sale of their lamps to the public at large.

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[2] Encephalitozoon Rabiei Parasite de la Rage. Y. Manouelian and J. Viala. Annales de l'Institut Pasteur, vol. xxxviii, No. 3, March, 1924.

THE TRUE TEMPERANCE ASSOCIATION

THE annual meeting of this Association was held at the Caxton Hall, Westminster, on Monday, Feb 28th, when the principal medical speaker was Dr Robert Hutchison Dr Hutchison in an interesting speech put forward what he suggested to be the healthy point of view of the temperance question viewed from the angle of the great majority of medical men These, he considered, believed from observation that patients whose habits in respect of drinking were moderate, proved no more subject to chronic disease and no more susceptible to acute illness than their teetotal patients He alluded to the difficulty of proving this common impression by statistics, and reminded the audience that the figures to be obtained from life assurance companies, some of whom did and several of whom did not accept proposals from other than teetotallers, were vitiated by the fact that the bulk of the companies making no such proviso included in their records the excessive drinker as well as the moderate drinker, while no one doubted that excessive drinking is injurious to health He referred his hearers to Prof Raymond Pearl's statistical inquiry contained in a book entitled "Alcohol and Longevity" (New York Alfred A Knopf, 1926) for definite figures which were the result of an investigation into over 5000 individuals belonging to the working class in Baltimore These figures, he said, were in his opinion as definite as any that would ever be obtained, and Prof Pearl's conclusion from them was that the moderate drinkers were just as long lived, and as a matter of fact rather longer lived than the non-drinkers The speaker's deliberate personal point of view was, he said, that the occasional and moderate use of alcohol is, from a strictly health point of view, beneficial rather than otherwise Whether regarded as food or medicine, taken in moderation and at the end of a working day, it soothes the nervous system and helps digestion in many persons Further, the moderate use of alcohol he considered to promote social recreation, which is so valuable for health, a use which is largely neutralised by the unattractive, not to say disgusting, environment of the usual public-house, where quick drinking is encouraged and where also it is often very difficult to get food to accompany the alcohol Dr Hutchison said that he was speaking here as a supporter of the People's Refreshment House Association and of Trust Houses, whose object was to improve the standard and class of the public-house in England, and he concluded by referring amusingly to the "Machiavellian intention" of teetotallers to keep public-houses in their present state, when they undoubtedly form an argument for abstention

WE have received copies of the newly published Medical and Dental Registers for 1927 and of the Medical and Dental Students Register The total number of persons registered under the Medical Acts from the beginning of registration in 1858 until Jan 1st, 1927, is 100,430 and it is estimated that 52,614 of these remained on the Register on Dec 31st, 1926 The number of names added during the year was 2120, and 46 were restored Against this must be set the removal of 1159 names on evidence of death or under Sections 14, 28, and 29 of the Medical Act The number of names added to the Register during 1926 was smaller than in any year since 1922, but the number of medical students registered rose to 1260, which is higher than at any time since that year As regards the national sources of medical practitioners, it is interesting to note that of those whose names remain on the Register 47 89 per cent are on the English local Register, 31 67 per cent on the Scottish, and 14 86 per cent on the Irish The number of names on the Dental Register for 1927 is 14,395 of which 45 per cent are registered with medical, surgical, or dental qualifications, and 55 per cent under the Dentists Acts (1878 and 1921) A total of 229 dental students was registered during 1926 All three volumes are published for the General Medical Council or the Dental Board by Constable and Co, Ltd.

ABOUT 150 members of the Inter-State Post-Graduate Assembly of North America, accompanied by Dr Charles Mayo, will reach London at the beginning of June, en route for a post-graduate tour of Northern Europe While in London a programme of lectures will be arranged for them, to take place at Dartmouth House, the new building of the English-speaking Union The following hospitals will arrange special programmes during the afternoons · St Bartholomew's Hospital, Westminster Hospital, St Thomas's Hospital, Middle sex Hospital, Charing Cross Hospital, London Hospital, King's College Hospital, Prince of Wales's Hospital, Brompton Hospital for Consumption, Infants Hospital, Vincent-square, Cancer Hospital, National Hospital for Diseases of the Heart, Chelsea Hospital for Women A reception will be given at the house of the Royal Society of Medicine by Sir James Berry, the President, on Friday evening, June 3rd

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Lt-Comdr J F Pace to be Surg Comdr

To be Surg Lts J Johnston, J B Patrick, J R C Spicer, and C P Burges

Act. Surg-Lts (D) to be Surg Lts (D) W E L Brigham, S Mawer, L F Fairey, L A Moules, F D Manners, G Baker, L R Armstrong, H M Hill, and W C G Ford

ROYAL ARMY MEDICAL CORPS

ARMY DENTAL CORPS

Capt R H Bebb to be Maj

Temp Lt F Widlake relinquishes his commn.

J M F Whitby to be Temp Lt

Temp Lt W. G Bradbeer, Dental Surg Gen List, to be Lt.

ARMY RESERVE OF OFFICERS

Lt.-Col W B Winkfield having attained the age limit of liability to recall, ceases to belong to the Res of Off

Lt G C F Roe to be Capt

TERRITORIAL ARMY

Capt L P Marshall, late W Yorks R, to be Lt and relinquishes the rank of Capt

ROYAL AIR FORCE

Flying Off H C Patterson relinquishes his short service commission on account of ill-health

Flying Off D Oliver resigns his short service commission

Flight Lt (hon Squadron Leader) F R Humphreys relinquishes his temporary commission on completion of service

Flight Lt N H Medhurst (Capt Army Dental Corps) relinquishes his temp comm on return to Army duty

INDIAN MEDICAL SERVICE

The King has approved the retirement of Lt-Cols D W Sutherland and A Whitmore

The King has approved the retirement of Col C H Bensley and Lt-Col Manmatha Nath Chaudhuri

Lts G M Irvine, G J Joyce, and J S Riddle to be Capts

Bhavani Shanker to be Temp Lt

R A M C AND GUARDS

DIVISION REUNION

It is proposed to hold a reunion of all officers, W O 's, N C O 's, and men of the Royal Army Medical Corps who served with the Guards Division during the late war, and those who have not had particulars should send their names and addresses to Mr J McKeown, late staff-sergeant R A.M.C, No 4 Field Ambulance, 90, Ashurst-road, North Finchley, N 12 The proposed date of the reunion is Saturday, April 23rd

Modern Technique in Treatment.

A Series of Special Articles contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXIV.—INFLUENZAL PNEUMONIA.[*]

The organisms most frequently associated with lobular pneumonias are *B. influenzæ* streptococci, and pneumococci of various types Besides lobular consolidation the pathological picture may comprise bronchiolitis peribronchial inflammation and abscesses œdema or collapse according to the predominant organism. The treatment of pneumonia resolves itself into providing or enabling the patient to provide sufficient antibodies to overcome the bacteria and their toxins But antibodies are only slowly produced and the patient may succumb to the intoxication before sufficient are present It is true that most patients will get well with simple expectant treatment, by which we mean little more than rest in bed with careful feeding and nursing. But we cannot pick out these patients from the others in whom the immunising response fails and faced with a mortality of 20 to 30 per cent we must ask ourselves whether more direct help cannot be given The only specific treatment available in influenzal pneumonia is with vaccines which are of considerable assistance when injected promptly in adequate doses

Pneumonia should be regarded as an acute medical emergency demanding as prompt action as any surgical emergency. The object of specific treatment is to control the infection before it gets out of hand. Sometimes diagnosis is delayed until signs of consolidation are present, owing to the unfortunate confusion between the disease and one of its manifestations The worst cases often have no recognisable consolidation The early symptoms are so striking that it should be possible to take prompt measures within 24 or at most 48 hours of the onset, and the patient's fate may be decided within the first two days

General Treatment

Detailed instructions must be written down, especially when patients are nursed by unskilled relatives First I would place absolute rest and free ventilation. From the beginning patients must be kept strictly in bed. Most patients object to the use of a bedpan, and unless strict orders are given at the beginning they will get out of bed as long as it is physically possible. Too much effort is caused by routine washings, reaching out for the sputum mug or feeding cup, and sitting up to cough. One garment slit down the middle should be worn and so prevent the exhausting struggle to get night-shirt and vest over the arms and head. Windows should be open night and day and the bed unscreened in the middle of the room. Fresh air is the finest circulatory tonic we possess but it must be used with common sense and the patient must not be exposed to icy draughts of cold air or to glaring sunlight During the initial chilly stages abundant bedclothes and a hot-water bottle are required but when the fever is established one sheet and blanket are sufficient. Gamgee jackets are relics of the days when it was thought that pneumonia was due to cold and therefore should be treated with heat Sponging night and morning should be done as a routine. Tepid water is usually advised, but very hot water at 110° F. by causing dilatation of capillaries is more effective in causing heat loss Additional sponging can be done when the temperature taken four-hourly exceeds 104°.

Diet

The most easily assimilated food is glucose, which has the additional advantages of feeding the heart muscle and preventing acidosis One pound should be dissolved in three pints of water with the juice of two lemons. If this is taken freely over the 24 hours the amount of milk given need not exceed one pint and should be citrated Coffee or tea can be added to some of the feeds. If additional food is required it can be given as albumin water, the whites of two or three eggs in one pint of water, flavoured with a little meat extract. Beef teas have a very small nutritive value and are objectionable on account of the large amount of extractives

The hygiene of the mouth requires constant attention. Dentures must be removed and the mouth wiped out with a rag moistened with a weak watery antiseptic such as listerine before and after food. Washes containing glycerine should not be used. A spray of parolein or chloretone inhalant to the nose adds to the patient's comfort Three grains of calomel at the onset followed by a saline may be given, but thereafter a morning soap-and-water enema will relieve the bowels and prevent distension A simple febrile mixture containing pot. citrate gr. 20, liq. ammon acetatis drachms 4, will aid the action of the skin and kidneys

Vaccine Treatment

A vaccine for use in influenzal pneumonia should contain equal numbers of *B. influenzæ* pneumococci, and streptococci, and be made so far as possible from primary cultures of various strains. For an adult a suitable dose is 100 millions of each organism; for a child of twelve 50 millions and for a child of two or three 10 to 20 millions. Much larger doses can be safely used When such doses are used on the first day of the illness in the majority of cases the temperature falls to normal during the following day and no further treatment is required. With each day's delay such rapid defervescence becomes less likely and the dose may have to be repeated every 24 hours until the temperature falls. When injection is delayed until the fourth or fifth day little can be expected from specific therapy. In a series of 107 consecutive hospital cases the results were as follows:

Day of first injection.	Cases.	Recovered	Died.	Temperature normal in— 24 hours	Temperature normal in— 48 hours.
				%	%
1st	28	28	0	71·4	85·7
2nd	23	22	1	47·8	56·5
3rd	22	20	2	50·0	72·7
4th	20	15	5	30·0	40·0
5th	14	12	2	35·7	63·5
	107	97	10	50·0	65·0

The only death among 51 patients injected during the first two days was that of a young woman admitted with mania who died of pulmonary embolism on the ninth day after the temperature had been normal for five days. Seven out of the ten deaths occurred in patients not injected until the fourth or fifth days, four were complicated respectively with mitral stenosis, advanced pregnancy, meningitis, and asthma, and the three others had considerable albuminuria

The chief obstacle to the use of vaccines has been the fear of a negative phase A negative phase can only occur in a patient who is "sensitised" that is, possesses specific antibodies. During the first few days of pneumonia and other acute infections the patient has no antibodies and is not sensitised, so that a large dose can safely be given Indeed, as much as 5000 to 20 000 million pneumococci have been injected intravenously into pneumonia patients with good results. The very rapid effect obtained suggests that the first action of the vaccine is non-specific, the specific effects being obtained later.

Symptomatic Treatment.

In the early stages relief of pain and sleeplessness is important Leeches when they can be obtained, give quick relief to the pleuritic pain. Antiphlogistine can be kept on for 24 hours and is preferable to linseed poultices, which require frequent disturbance of the patient, but the latter are more easily applied by the unskilled. With either, care must be taken not to embarrass the chest movements. In hospital patients immediate relief can be given by the insertion of 400 to 500 c.cm. of oxygen between the pleural layers with a pneumothorax apparatus. Counter-irritation should not be continued after pain is relieved. Dover's powder (gr. 10) will relieve both pain and sleeplessness. The milder hypnotics are usually ineffective, and when Dover's powder fails to bring sleep omnopon, gr. $\frac{1}{6}$, is better than morphia. In the early stages its use is quite safe in the absence of cyanosis or much bronchial secretion. Paraldehyde is objectionable to take but generally regarded as safe. One to two drachms can be given in very sweet tea or two to three drachms stirred into two ounces of starch paste and given per rectum. In severe cases, with great excitement and struggling, hyoscine hydrobromide, gr. 1/100 to 1/50, is the only drug likely to take effect. In the later stages, when there is cyanosis and much secretion in the tubes, all drugs which cause sleep are unsafe. In such cases atropine will be useful. If gr. 1/100 does not give the desired effect it may be increased up to gr. 1/30. But in the grave cyanotic cases with much respiratory embarrassment ammonium carbonate (gr. 5 every two hours) is a valuable remedy. It may be increased up to gr. 10 hourly for six doses and then after an interval of a few hours the course repeated. Owing to its nauseous taste it should be given in milk. Raising the foot of the bed also helps the drainage of the bronchi.

With early specific treatment, feeding with glucose, rest, and fresh air, much can be done to avoid circulatory failure. The heart can be best helped by food and oxygen and the best food is sugar. With the slightest indication of anoxæmia oxygen should be administered through a rubber catheter passed into the nasopharynx. It is surprising that it is still often administered by the wasteful and futile method of the funnel. There is no evidence that digitalis is of any value for the treatment of heart failure in pneumonia except when auricular fibrillation is present. More can be said for its early use (♏ 10 to 15 three times a day), with the object of retarding the pulse. The heart, however, does not fail because of its rapidity but because of its intoxication. Heart failure does not stand alone, but is part of a general circulatory failure which is as much due to the action of toxins on the medullary centres as upon the heart muscle. In such a condition digitalis can do but little, and the same is true of strychnine, camphor, and caffeine. With a falling blood pressure pituitrin, $\frac{1}{2}$ to 1 c.cm., or adrenalin (1 in 1000), minims 5 to 10, can be injected every six hours, the former is especially useful when there is tympanites. Recently synthetic drugs, such as coramine and cardiazol, have been introduced, and are worthy of trial as analeptics. Alcohol is the most used of all drugs in pneumonia and influenza. There is no scientific reason for its use, which is mainly traditional and due to the popular idea that it is a stimulant. Whilst in the early stages it may remove inhibitions due to pain, counteract restlessness, and induce sleep, its repeated administration helps to increase the degeneration of heart muscle and impairs resistance to infection.

The high mortality from the pneumonias will never be reduced by attempts to treat poisoned organs incapable of response, but only by early diagnosis and prompt measures to prevent intoxication. Expectant treatment in the early stages is apt to be followed by harmful drugging in the later

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Special Articles.

THE NUTRITIONAL CONDITION OF THE EAST AFRICAN NATIVE

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As the development of East Africa has proceeded there have been increased facilities for collecting information with regard to the physique and general health of the native race. It becomes evident as information on this subject accumulates that some of the conditions of malnutrition and lowered resistance to diseases which are being studied so intensively in Europe and America and are being ascribed to "deficiency" diets and faulty hygiene of modern civilisation, are not uncommon amongst African natives. Indeed, it may be stated here that disease in one form or another appears to be as prevalent among native races as among civilised peoples, and the problems of the prevention of disease are as acute as, and in many respects more difficult than, in Europe and America.

The only reliable data on the incidence of disease are the statistics on native labour employed on railway construction and the admissions to native hospitals. Observations by resident officers in the native reserves, however, seem to show that the diseases which are most prevalent amongst native workers, and in natives admitted to hospital, are also prevalent in the native reserves, so that this data may be taken as giving a more or less accurate indication of the incidence of disease in the native tribes from which the contract labour and hospital cases are drawn.

On the average, the mortality and sickness rate amongst railway construction labour has been in the past as high as in industrial areas in Britain. Thus, of a labour strength of 14,000 employed in the construction of the Uasin Gishu Railway in 1921, the death-rate was 46 per 1000, and the admissions to hospital for a period of six months for which records are available were 2892. The sickness rate has rapidly declined and is still declining. In 1924 the death-rate in native labour on railway construction was only 10.8 per 1000. This decrease is almost certainly due to improvements in the diet and hygienic conditions. The diet was made more varied and more like that consumed by Europeans by decreasing the amount of maize and increasing the amounts of legumes, vegetables, and meat. Even this lower rate—10.8 per 1000—is, however, high for selected men medically examined before being accepted for work. In the British army, the body of men in this country most comparable to the African contract labour, the death-rate in peace-time is only about 2 per 1000.

The Prevalent Diseases.

This high rate of sickness and mortality is not due to "vocational" diseases. Indeed, the diseases which are most prevalent among the native workers appear to be pretty much the same as those most prevalent among the rest of the population. The commonest diseases are those of the respiratory organs. These account for nearly 50 per cent. of the deaths from all causes. A large proportion of the cases are pneumonias. Pulmonary tuberculosis is common. In Mombasa in the years 1922, 1923, and 1924, it was second on the list of causes of adult mortality. The same high incidence of tuberculosis is found in Nairobi.

Ulcers, situated chiefly in the legs—i.e., the parts most liable to abrasion—are very common. In the construction of the Thika-Nyeri Railway, out of a labour strength averaging 4142, the cases of ulcers admitted to hospital numbered 186, and the total number of hospital days required for the cure was 4054 The cases of ulcers which are encountered in the native reserves are frequently of a most severe type, and it is no uncommon thing to find that the ulcerative process has extended to the bone and that the resulting osteomyelitis has led to the formation of extensive sequestra

Dysentery is also common The infection is not usually amœbic, and bacteriological examination does not reveal the presence of the bacillus of dysentery. In 1925, out of a total of 66 cases examined at the laboratory in Nairobi, only six instances of infection with Shiga bacillus were detected and none with Flexner A striking feature of dysentery among labour on works or estates is the frequency with which the disease appears among newly joined recruits A parallel is found in the incidence of pneumonia among labour employed in the mines in South Africa It is the newly joined men who go down most frequently. Those of longer standing, who incidentally have been fed for a longer period on a carefully adjusted diet, are relatively immune In this connexion it is interesting to note that in the Katanga mines in the Belgian Congo it is the custom to draft newly recruited labour to a special camp where the men are fed properly to put them into good condition before they are allowed to work

Cases of cancer are found in the native reserves There are no figures to show whether or not it is as common amongst the natives as it is in Europe, as only a very small proportion of natives suffering from disease are seen by medical officers It can be definitely stated, however, that cancer is by no means a rare disease The myth that the primitive races of Africa do not suffer from cancer has been exploded years ago

The Dietary

The foregoing would indicate that the Kenya native is unduly susceptible to disease The next point to consider is whether his dietary is such as should supply him with the requirements, as recognised to-day, for a healthy nutritional condition The diets of the various tribes vary as widely as do their languages, and vary with their environment as well as with their particular customs and prejudices Some have a diet almost as mixed as that of the European, and in the opinions of those best competent to judge, these were the most efficient carriers during the war Among these may be mentioned the Kavirondo from the shore of the Victoria Nyanza, from whom is drawn what is widely considered to be the best labour in the colony. On the other hand, the tribes of the slopes of Mount Kenya live almost exclusively on a cereal diet Little or no meat is eaten, and such as is consumed is largely on account of superstition or religion, indicating possibly a physiological craving It is the elders who profit, as a rule, from the ceremonial meat-eating The young men of the warrior class develop at intervals a meat-hunger, in fact there is a verb in the Kikuyu language indicating to become hungry for meat A group will combine to purchase or obtain a bullock The party adjourns to a suitable place where the bullock is slaughtered and eaten on the spot Afterwards a period of abstinence from meat follows Absence of meat from the dietary does not come about as a result of preference Cattle and goats are valuable possessions, chiefly used in the purchase of wives, they cannot therefore be slaughtered in a light-hearted way for food Every advantage is taken when an animal dies from natural causes The carcass is regarded as a welcome addition to the menu and is disposed of accordingly The result is reflected in the large total of cases of anthrax, which is returned every year in the official medical statistics The physique of the Mount Kenya tribes is far from good and it has long been considered that a dietary deficiency is at the root of the unsatisfactory condition which prevails

Near neighbours of the vegetarians referred to above are the Masai, formerly the terror of East Africa The Masai in his natural state lives almost entirely on meat, milk, and blood The last is drunk fresh As a labour force the Masai are negligible Their interest is in cattle and nothing else, and apart from engaging as herdsmen they do not enlist for work Not much is known as yet as to the medical or nutritional condition of the Masai who, perforce, adhere to their nomadic habits, but it has been reported that rheumatism and constipation are common among them. There are indications that the hitherto exclusively protein diet is being added to by carbohydrate in the form of maize meal, which is being obtained by purchase or barter

The foregoing brief and incomplete sketch of the dietary habits of tribes in Kenya must be supplemented by allusions to customs which in themselves may indicate that deficiencies occur in connexion with the mineral constituents of the food. All over the country occur salt licks to which are driven the cattle after sojourn for more or less extended periods in other grazing areas It is not, however, only the cattle who consume the earth found at these licks Human beings take their quota, either eating it as it is found or steeping it in water and drinking the supernatant liquid, or using it to prepare food The custom is not so largely followed as formerly The earth is still seen exposed for sale in the market-places for administration to cattle or goats, but for humans its use is being largely replaced by the raw soda produced at Lake Magadi The children in a Kikuyu market-place purchase their measure of Magadi soda, which they consume with the same gusto as do English children their pennyworth of sweets at a fair

The Kavirondo add cow's urine to their milk before consuming it. A similar custom obtains among other African tribes One is reminded of animals which, when deprived of minerals, drink the urine of each other.

Disease and Primitive Methods of Life

The African native is thus by no means the "noble savage" that he is frequently supposed to be He is prone to infectious disease and he is too frequently an individual of poor physique. The infantile death-rate, where it has been worked out in purely native areas, is somewhere between 400 and 500 per 1000. Granted that the native babies are given artificial food at a very early age in the shape of gruel or chewed-up bananas, and that this may have a great influence on the production of a high death-rate, yet may there not be a reason for the mother saying that "milk is not a food"? The real meaning may be that the milk produced by the mother is not of a quality sufficient to cause healthy growth in her offspring

The information, so far as it goes, seems to suggest that at least amongst some of the tribes the native population is no better physically and no less susceptible to disease than Britain's C3 population Vegetarian diets, such as that used by the Kikuyu, even when accompanied by abundant sunshine on a half-naked body, is evidently no guarantee of health and no sure prevention against diseases such as tuberculosis and cancer, which are sometimes attributed to lack of sunshine and the use of the refined foodstuffs of civilisation A study of the conditions in one of these reserves, where the infant mortality is so much higher than that of Britain, where women suffer from senile decay at an age when British women are approaching their prime, and where, in addition to malaria yaws, and diseases due to intestinal parasites the worst diseases which affect the people of civilised countries are also prevalent affords no support for the view that the adoption of the dietary habits and the primitive methods of life of the African native would lead to the elimination of disease

These problems of the nutrition of the native have received more than local attention Through the good offices of the Empire Marketing Board it has been possible to obtain the cooperation of experts in nutrition in Britain A Committee, consisting chiefly of members of the Nutrition Committee of the Medical Research Council and medical representatives of the Colonial Office, have outlined a scheme of investigation on problems of nutrition among the native races of Kenya Two research workers have been sent out from the Rowett Institute, and experienced officials of the Kenya Medical Service will cooperate with them in carrying out investigations to determine whether there is any correlation between diet and diseases in the natives

SOCIAL CONDITIONS AND ACUTE RHEUMATISM.

REPORT ON INVESTIGATIONS IN LONDON AND GLASGOW

IF the factors determining the greater incidence of acute rheumatism in the hospital class, as compared with the well-to-do, could be ascertained, steps might be taken to prevent its occurrence and moreover some light might be thrown on the causation of the disease

This was the starting-point of a searching inquiry made simultaneously in London and Glasgow under the auspices of the London Committee for Child Life Investigation, over which Dr G F Still presides This is one of the standing scientific committees appointed by the Medical Research Council; its members include Dr John Brownlee, Dr H C Cameron, Dr J S Fairbairn, Mr Eardley Holland Dr R C Jewesbury, Prof M S Pembrey, and Dr O L V de Wesselow, who acts as secretary

Dr Still, in an introduction to the report[1] of the results of the investigation, sets out the reasons why it seemed worth while to make a thorough survey of the conditions under which rheumatism arises, the parentage, the family incidence, the environment, especially as to housing, clothing, and cleanliness, also the physical characteristics of the children affected, especially as regards the state of the throat It was not practicable to obtain for comparison any sufficient statistics on similar lines from families of the well-to-do, so it was decided as far as possible to check the results obtained by comparison with non-rheumatic families of the hospital class These families were selected only in that each contained a child attending the hospital for a non-rheumatic disease, and are termed "control families"

The Data of the Investigation

The data on which the investigation is based consist of the medical and social histories of 721 families containing at least one child who is, or has been, under treatment for rheumatism Of these, 121 histories were compiled at the Children's Hospital, Great Ormond-street, London, 200 at the Royal Hospital for Sick Children, Glasgow, and 400 at St Thomas's Hospital, London For comparison with these "rheumatic families" the histories of 200 "control families" were investigated, 100 at the Royal Hospital for Sick Children, Glasgow, and 100 at St Thomas's Hospital, London In addition, the rheumatic histories of some 2000 children residing in Poor-law schools were ascertained

It is made clear at the outset that throughout the report the term rheumatism is used to indicate only the disease sometimes known as rheumatic fever or acute rheumatism, with its recognised manifestations Vague aches and pains or tonsillitis were not accepted as evidence of rheumatism, and none of the forms of so-called rheumatoid arthritis were admitted, since there is no reason to suppose that they have any connexion with the disease under investigation At St Thomas's Hospital, under arrangements made by Dr J S Fairbairn and Dr. O L V de Wesselow, the children were examined by Dr. C K J. Hamilton and Dr J Forest Smith Inquiries into the social history were made concurrently by Mrs M Forest Smith The second series at the Hospital for Sick Children, Great Ormond-street, London, was examined by Dr F J Benjamin, working under Dr Still, the social inquiries here being made by Miss Little In Scotland, Dr Margaret F Lowenfeld and Dr H W Sutherland, worked under Prof Leonard Findlay at the Royal Hospital for Sick Children, Glasgow The supplementary inquiry into rheumatism in Poor-law schools was made by Dr Benjamin

The mass of observations made by the three groups of workers were reduced to a connected report by Mrs M Forest Smith, and Dr J Brownlee and Dr Matthew Young have tested the statistical significance of the results The Council express special appreciation of the aid given by Dr de Wesselow

Dr J A Glover helped in obtaining figures and information as to buried rivers and old watercourses, and the medical officers of health for many London boroughs supplied records of the measurements and sanitary conditions of houses.

Scope of the Inquiry

The scope of the inquiry included the incidence of rheumatism in rheumatic and control families, among living and dead children, the hereditary aspect being specially studied The incidence of sore-throat in rheumatic and control families, the condition of the throat in rheumatic and non-rheumatic members of these families, and the results of throat operations sustained by the rheumatic members of rheumatic families were ascertained Evidence of infectivity was also sought, the possibility of infection from sleeping with a case of rheumatism, instances of the occurrence of rheumatism in persons in close contact with rheumatic patients, and the incidence of rheumatism in families of different size being considered

In order to discover the effect of poverty, hospital patients were divided into three social classes, and the incidence of rheumatism investigated in each class Social points studied included, as factors concerning the child, conditions of life, maternal care, degree of subjection to exposure, sleeping accommodation, clothing, cleanliness, and distance from school; as factors concerning the parents, their characteristics, birthplace, general condition, occupations and incomes The types of housing, position of rooms occupied, aspect of rooms and houses, number of rooms per family, number of persons per room, ventilation, lighting, air space per person sanitation, vermin, dust, dampness, locality—all came within the purview of the investigation

The seasonal incidence of rheumatism and even the incidence of rheumatism in relation to pigmentation of hair and eyes was studied, while the incidence of rheumatism in four Poor-law schools visited was compared with its incidence, as found by other observers, among children attending public elementary schools

General Conclusions

It is admitted that the conclusions drawn from this exhaustive survey are mainly negative, but a few definite findings emerge The details must be sought in the report Some of the general conclusions drawn by Dr Still in the final chapter of the report are set out below —

Family Incidence —There was found to be clear evidence of family incidence, rheumatism was common in the parents or brothers and sisters of the rheumatic child This might indicate inheritance of the disease or of some special tendency to the disease, but, on the other hand, it might be due to similarity of environment, or again it might be due to contagion

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[1] Medical Research Council Special Report Series, No 114 H M Stationery Office Pp 108 2s 6d

Heredity —No sufficient evidence of heredity was forthcoming A history of rheumatism in grandparents can seldom be verified , parental rheumatism can be ascertained with a nearer approach to accuracy Careful inquiry showed that rheumatism had occurred in the father or mother in about 20 per cent of the rheumatic families , but in the control families there was also parental rheumatism, less indeed but still in one set of figures as high as 17 per cent , in another 11 per cent . so that it may be doubted whether the excess of parental rheumatism is sufficient indication of heredity

Infection or Contagion —The relation of rheumatism and its family incidence to environment has occupied the greater part of the investigation The question of infection or contagion is necessarily closely connected with that of environment In view of the heavy incidence of rheumatism upon children of the hospital class as compared with that upon children of the wealthier classes, it might be expected that the incidence of rheumatism amongst the former would be in direct relation to the degree of poverty This, however was found not to be the case ; indeed, if the hospital patients are divided into three classes according to the degree of poverty, the poorest of these three, the very poor and destitute, show a lower incidence of rheumatism than the other two It would seem, therefore, that if poverty is a factor in the incidence of rheumatism it must be on account of some condition or conditions associated therewith which are not equally present in all degrees of poverty

A comparison between the rheumatic and non-rheumatic children in respect of home conditions seemed to show that in the rheumatic families the maternal care was less good, and therewith exposure to cold and wet was more common and clothing less satisfactory The housing inquiry threw but little light on the problem , dampness which has generally been credited with playing a large part in the causation of rheumatism was only slightly more frequent in the houses of the rheumatic families than in those of the others Overcrowding of rooms did not seem to be commoner amongst the rheumatic families than amongst the controls, nor was there any appreciable difference between the two as regards sanitation in London, but in Glasgow the proportion of rheumatic families living in houses with bad sanitation was appreciably larger Neither ventilation nor lighting appeared to be any worse in the homes of the rheumatic families than in those of the controls

These findings are based upon a comparison between the families of rheumatic children and those of non-rheumatic children, all of the hospital class , it may be that an investigation of the conditions under which the rare occurrence of rheumatism takes place in the children of the well-to-do, whose environment is less similar, would throw into more prominence any common factor of causation If rheumatism is due to infection its incidence may be determined by special frequency or closeness of exposure to infection, or by some condition in the particular children concerned rendering them especially susceptible to infection With regard to the former, in the absence of any certain knowledge as to the mode of conveyance of infection, it was decided to investigate the frequency of exposure to some of those sources of infection which are recognised as responsible for other diseases The presence of vermin such as fleas, bugs, body-lice, and head-lice was found to be not more frequent in rheumatic families than in others , sanitation in the London area was no worse in the houses of the rheumatic than in those of the control families

The possibility of direct contagion from person to person is difficult to exclude If it occurred it would go far to explain the greater frequency of rheumatism amongst the children of the poorer class than amongst those of the well-to-do for the former live under conditions of much closer contact In the homes of the hospital children it was found that commonly two children and often three or more slept in one bed

Inquiry showed that in many instances a rheumatic child shared a room or a bed with a sister or brother or that a rheumatic parent slept in the same room with the children It could not be proved that infection had occurred in this way , on the other hand, individual instances were noted in which it seemed at least possible that the disease had spread in this way from one child to another The question is not an easy one to determine, for even if in the chronic stage which many of the children had reached, there was no apparent spread to other children by contact, it is still possible that in the earlier and more acute phase there may be a time at which spread by contagion is possible , moreover, contagion if it occurs may be indirect , it is conceivable that a room or a house may be infected by some occupant, particularly, perhaps, by one who was there in the early acute stage of the disease It was hoped that this point might be investigated, but it was found impracticable to ascertain in any sufficient number of cases the antecedents in the house Clothes also might be a source of infection, and it was noted that there was less individual proprietorship of clothing amongst the children seen at hospitals than is usual amongst the well-to-do The time relationship of the onset of rheumatism in two or more members of the same family was in individual instances suggestive of the possibility of contagion direct or indirect

On the whole while it cannot be said that there is, in the facts collected, any conclusive evidence of contagion, many of them are consistent with this view

An unhealthy throat was noted in a higher proportion of rheumatic children than in non-rheumatic , the difference, however, was not very large It is perhaps significant that amongst the children in the Poor-law institutions in the London area the proportion of healthy throats was much higher than amongst children of the same class living in their own homes in London This suggests that environment plays some part in the production of unhealthy tonsils, and that this is one direction in which environment affects the incidence of rheumatism The effect of tonsil operations was investigated It was found that neither cutting nor enucleation was any guarantee of immunity from rheumatism ; out of 295 rheumatic children who had had their tonsils surgically treated, 129—i e 43 7 per cent —developed their rheumatism for the first time subsequently, and this although in about half the number the treatment had been complete enucleation of the tonsils

Whilst therefore an unhealthy state of the tonsils may favour the onset of rheumatism, it is clearly not an essential factor Statistical evidence seems to confirm the association between unhealthy tonsils and rheumatism, though it does not prove that the rheumatism is a result of the tonsil condition , the converse indeed might be true If, however, the unhealthy state of the tonsils is to be regarded as causal, such a view would be consistent with an infective agent as the essential cause of rheumatism and would not exclude the possibility of contagion Indeed, on the analogy of other infective diseases it makes intelligible the possibility that close contact would favour the transmission of the disease

Notification —Possibly more light might be thrown upon the question of the spread of rheumatism, whether by contagion or otherwise, if it were made a notifiable disease This would at any rate secure information as to its prevalence and distribution, matters of practical importance if institutional treatment upon a wide scale is desirable for children with rheumatism The difficulty of notification would be considerable for the diagnosis of the more characteristic manifestations of rheumatism heart disease, and chorea, and even the acute articular affection is by no means free from possibilities of error and in its less pronounced forms rheumatism may be very difficult to diagnose

In the meantime it appears from this inquiry that although it is difficult to point to this or that fault of environment as responsible for *rheumatism* nevertheless it is by raising the standard of environment, improving the home conditions so that they approximate to the well-ordered conditions found in such institutions as those in which rheumatism was found to be much less common and probably by reducing crowding, so that the possibility of contagion may be diminished that we may hope to reduce the frequency of rheumatism in children

MEDICINE AND THE LAW.

Miner's Nystagmus: Proneness to Recurrence

A MEDICAL referee under the Workmen's Compensation Act occasionally encounters difficulty in certifying an industrial disease which is prone to recurrence; the symptoms are found to be present at one date but not at another, and the question arises of the continuance of the disease This difficulty occurred in a case lately decided by the House of Lords A miner, employed for 35 years in a colliery, was certified in July, 1923, to be suffering from nystagmus, an appeal against the certificate to a medical referee was dismissed He received 35*s* weekly compensation under the certificate for three weeks; afterwards he was given light work above ground A year later he was again certified to be suffering from nystagmus; for a month he received compensation, then went back again to light work In February, 1925, the county court registrar made an order for his examination by the medical referee, who was asked to certify as to his condition and fitness for employment, to specify (if necessary) the kind of employment for which he was fit, and to say whether the incapacity was due to the industrial disease and whether he was fully recovered from the nystagmus The medical referee did not answer all these questions categorically He certified that the man was not suffering from miner's nystagmus, that he was hypermetropic and had incipient cataract, that his condition was such that he was fit for surface work, and that his condition was not due to nystagmus Fortified by these findings the colliery proprietors ceased to pay compensation In July, 1925, however, the miner was again certified to be suffering from nystagmus Appeal from the certificate was dismissed, the referee certifying that the workman's present condition was that he had nystagmus and also lens opacities Four months later the workman applied for arbitration, but the colliery denied liability on the ground that the certificate of February, 1925, was final and conclusive, and that the workman could not go behind it The county court judge had evidence before him that nystagmus was an industrial disease which comes and goes, and that at the moment of the county court hearing the workman was incapacitated by nystagmus The medical referee, it was true, had been asked in February, 1925, to say whether the man had recovered from the disease, and he had answered that the workman was not then so suffering, but he had not reported that the workman had fully recovered The county court judge did not feel himself debarred by the certificate of February, 1925, from finding that the workman was in fact suffering from nystagmus at the moment, and he awarded the man compensation at the rate of 10*s*. a week There is good legal authority for saying that a certificate is conclusive only of matters referred to therein as at its own date, and is not to be taken as amounting to *res judicata* between the parties Following this authority the Court of Appeal upheld the judge's award and said he was justified in inferring from the later certificate that the workman had a special susceptibility to nystagmus which had broken out after the earlier certificate The House of Lords concurred and dismissed the employers' appeal Their lordships said the medical referee's certificate of February, 1925, did not certify that the workman had fully recovered from the original attack though the medical referee had been expressly asked to report upon this point. The certificate meant only that the symptoms of nystagmus were not apparent at that time and that there was at that time no incapacity due to nystagmus As the county court had uncontradicted evidence before it that nystagmus came and went, the county court judge was entitled to hold that the workman was at the date of the hearing suffering from the disease originally contracted in 1923

Hospital Treatment and Poor Relief

If anyone, treated as a private patient in a hospital maintained by the guardians out of the rates, pays for the whole of the treatment out of his own pocket, can he be said to have received poor relief? The significance of the question is that the acceptance of union or parochial relief disqualifies a guardian from holding office. The point came before the Divisional Court and (on appeal) the Court of Appeal in January The proceedings—as often happens in local government litigation—sound a little complicated They took the form of an application by an elector for an order of the Court to direct the Dartford Guardians to show cause why a writ of mandamus should not issue to command them to declare vacant the office of guardian held by a lady who, since her election as guardian, had received—it was suggested—"union or parochial relief" The ground of the application was that the lady had been a private patient in the King Edward Avenue Hospital, Dartford, which was maintained by the guardians out of the rates An operation was performed upon her by her own doctor, who attended her subsequently at the hospital, the anæsthetic was administered by the medical superintendent of the hospital, who was not a whole-time officer, but was paid a separate fee by the guardians for his services The lady paid for her conveyance to the hospital and for the whole cost of her maintenance and treatment there, but the applicant in the Divisional Court said that the facilities she received made her technically a pauper, a view said to be accepted by most boards of guardians and not openly repudiated by the Ministry of Health Private patients, of course, were not admitted to this hospital at Dartford if such admission would interfere with the treatment of other patients by way of poor relief.

Lawyers have expressed doubt whether the treatment of a private patient for payment in a rate-maintained hospital was to be regarded as a privilege or advantage which amounted to the receipt of poor relief Four years ago (in the case of Chard *v* Bush) Mr Justice Sankey held that the receipt of money from the local authority by way of loan amounted legally to poor relief This was because the Acts which were material in that case repeatedly spoke of "relief on loan" and "relief by way of loan" In the recent Dartford case Mr Justice Salter said that, as the guardians had been paid in full, there was no evidence on which the lady could be said to have received "union or parochial relief" within the meaning of the Local Government Act The Court of Appeal upheld this decision The grant of the writ of mandamus is discretionary, and the superior Court saw no reason to interfere with the discretion exercised by the Court below. Modern statutes usually deal carefully with matters of disqualification For instance, the Housing (Rural Workers) Act, passed last year, saves the position of a member of a local authority who receives a grant or loan under the Act, but he must not vote on any resolution or question relating to a house or building in which he is interested.

Certificate of Cause of Death Apparent Insufficiency of Information

The Births and Deaths Registration Act of 1874 lays down that "in case of the death of any person who has been attended during his last illness by a registered medical practitioner, that practitioner shall sign and give to some person required by this Act to give information concerning the death a certificate stating to the best of his knowledge and belief the cause of death" The recently passed Births and Deaths Registration Act of 1926, which comes into operation on July 1st of this year, does not substantially change the position From time to time doubt arises how far a doctor who has attended a patient has sufficiently recent knowledge of the case to be able to certify the cause of death At an inquest at Lewisham the coroner for South-East London has lately had occasion to express this doubt rather sharply. A man aged 67, previously engaged in the trade of organ-building, was treated last September and subsequently for atrophy of the hands. One morning he was found dead in bed. The widow appears to have attempted to communicate by telephone with the specialist who had treated the deceased; it was found that the specialist was absent in France. Communication was established by the aid of the aeroplane post, and by this means a certificate was obtained which purported to state that death was due to progressive muscular atrophy. Major W. H. Whitehouse, the coroner, had before him at the inquest the evidence of Dr. T. E. White, of Catford-hill, to the effect that death was due to hæmorrhage from gastric ulcer. The coroner asked the widow how a doctor living in France could know that her husband had died from progressive muscular atrophy. She agreed that the specialist had not seen her husband during the last week nor since the death. Major Whitehouse recorded a verdict of death from natural causes and remarked, with regard to the certificate which had been produced at the inquest, that it was the most irresponsible thing he had ever met with.

The court was not, of course, aware of anything which the absent practitioner might have had to say in justification of an opinion expressed no doubt in perfect good faith and perhaps given, in the hurry of the circumstances and at the urgent instance of the relatives, without the usual care. The incident shows the danger of certifying the cause of death without adequate and recent information.

BERLIN.

(From our own Correspondent.)

Legislation against Venereal Disease.

After long Parliamentary debate the new Bill for the control of venereal disease has become law. Persons suffering from these infections will now be obliged to have themselves attended by a medical man, guardians being made responsible for the treatment of wards and minors. For paupers and people who are not obliged to belong to a sick-club and are unable to pay for medical attendance, the local health authority will have to make arrangements. Anyone suspected of suffering from venereal disease may be directed by this authority to submit a medical certificate that he is healthy, and if he does not comply with this demand he may be examined by a medical officer. The law, however, expressly forbids the authorities to consider anonymous communications. Sexual intercourse by a person who knows that he or she suffers from a venereal disease may be punished by imprisonment up to three years, and similar penalties may be inflicted on anyone who is infected and who marries without mentioning the fact to the other party to the marriage. In these cases no official action is taken except on the special request—which may afterwards be withdrawn—of the injured party. Medical attendance on venereal disease is allowed only to medical men or women, and medical advice without examination is forbidden and may be punished by imprisonment and fines. An unqualified person attending venereal patients is liable to suffer the same consequences, whilst patients who interrupt their course of treatment before being declared cured by their medical attendants are liable to have their names reported to the local health authority. Medical and other Government or municipal officers are bound to keep strictly secret the fact that a person is suffering from a venereal disease, and those who disregard this obligation may be given a year's imprisonment as well as being fined. Advertisement of remedies for the cure of venereal disease is not to be allowed except in medical and pharmaceutical journals. Public lectures on the dangers of venereal diseases are permitted provided that they are held only for purposes of instruction. The Act further makes the following persons liable to 12 months' imprisonment and a fine: (1) A wet-nurse who before being employed conceals the fact that she is suffering from a venereal disease. (2) People who allow a syphilitic infant to be nursed by anyone other than its mother or a syphilitic nurse. (3) Those who allow an infant suffering from venereal disease other than syphilis to be nursed by a wet-nurse without informing her of the fact and without providing for prophylactic measures. (4) Those who give a child suffering from a venereal disease to foster-parents without informing them that it is infected in this way. A wet-nurse before being employed must in future produce a certificate of health. The Act finally prohibits brothels and contains provisions for the housing of prostitutes.

This new legislation certainly restrains the personal liberty of the individual for the sake of the community to an extent hitherto unknown in this and many other countries. Its principal feature is that henceforth men and women will be subjected to the same rule so far as the spread of venereal diseases is concerned; until now a man could not be punished for his misdeeds, whereas a woman could eventually be registered as a prostitute and suffer all the consequences of that registration. It is satisfactory that quacks are expressly excluded in the above Act from any form of attendance on venereal patients; this provision, indeed, caused a good deal more debate in Parliament than many of the other provisions of this very incisive Act.

Can a Qualified Medical Man Practise as a Quack?

The existing laws governing medical practice sometimes lead to rather ridiculous results. According to the regulations a qualified medical man, before beginning practice in any district, has to call personally on the district medical officer of health and show his diplomas; he is thereupon registered in the district, and his registration notified to the central authority. People without qualifications, if attending patients for money, have also to present themselves to the medical officer of health for purposes of control. The financial success of many unqualified persons has caused a certain number of medical men to settle as quacks, and recently one of them presented himself to the district medical officer without mentioning that he had a regular qualification. When this was discovered he was prosecuted for having broken the regulations of medical practice. The defendant pleaded that he had intended to make no use of his qualification and would have abstained from treating diseases and from prescribing any drugs which must only be dealt with by the medical profession. The Supreme Court of Prussia held that a medical man before beginning practice must certainly show his diploma to the competent authority. Even if he intends to practise not according to the methods of scientific medicine but of quackery, he must, nevertheless, follow the laws and regulations concerning the medical profession. Should he desire to make no use of his diploma he may only do so by an express statement of his intention. Whether a medical man can altogether renounce a qualification duly obtained the Prussian Court was unable to decide, for this matter falls under the jurisdiction of the Imperial Court.

Statistics of Diabetes.

Dr. Ullmann lately read before the Society for Internal Medicine a paper on the frequency of diabetes. Notification of diabetes not being compulsory, nothing more than the mortality which it causes can be ascertained, this being estimated from the statements on death certificates. During the late war the mortality from diabetes was decreasing, not only amongst the belligerents but also in neutral countries such as Switzerland; in Berlin it fell from 23 per cent. in 1913 to 11 per cent. in 1920. Undoubtedly restriction of diet contributed to this decrease, especially in Germany, which suffered most of all from shortage of food. Even in the United

States of America, where there was but little control of food, there was a small decrease In rural districts, where food was not, of course, so scarce as in the towns, the lowered death-rate was less marked The statistical records of Europe and the United States have made it obvious that since the middle of 1921 diabetes has again been on the increase It is not nervous strain which causes the disease, but lavish nourishment with too little bodily exercise Sports is a prophylactic against it. It is remarkable, however, that women now contract diabetes more often than formerly In the discussion Prof Beugsch stated that in one-third of the cases a hereditary factor could be traced He thought that the prevalence of the disease was a symptom of degeneration in the population. The severe forms of diabetes in young people have not increased, it is amongst adults that the condition is growing more common

A New Medical Journal.

To the great number of German medical periodicals a new one has recently been added under the name of the *Medizinische Welt* The editors are Dr Dietrich, late director of the Prussian Medical Department, and Dr Beyer and Dr Ostermann, at present officers of the department In their introductory article they explain that the new journal is especially intended for the average practitioner who is not in a position to read the detailed articles in the great scientific journals They will therefore lay stress on shorter articles without long lists and description of experiments, and will deal with medical research, practice, politics, instruction, technique, and medical news in general Three numbers of the new journal have so far been issued, it is well printed and contains numerous illustrations, including photographs of the authors of the principal articles

VIENNA.

(FROM OUR OWN CORRESPONDENT)

Effect of Euphyllin on Respiratory Paralysis

Dr Vogl has reported to the Gesellschaft der Ärzte on his investigations into the effect of euphyllin (theophyllin and ethylene diamine) on cases with diminished excitability of the respiratory centre and cerebral cortex Whilst injecting euphyllin intravenously to increase diuresis, he found that the volume and rate of breathing were markedly increased Experiments on himself showed that this increase could not be voluntarily controlled, and he found that the drug gave very satisfactory results in patients who had Cheyne-Stokes breathing A few seconds after intravenous injection the rhythm became regular and this effect sometimes lasted for as long as 60 hours In cardiac dyspnœa the feeling of oppression was rapidly relieved, and in conditions of coma—e g, narcotic intoxications—the patients could be recalled to life almost instantaneously It seems, therefore, that we may have in euphyllin a useful analeptic for use in cortical paralysis As the substance has a very powerful effect on the circulation, it is not quite certain whether its rapid action is not due to a combination of cerebral and circulatory stimulation Experiments by Guggenheimer, Elias, and others seem to point to a double plane of attack But in cases of uræmia, apoplexy, and cerebral tumour, in which circulation was not disturbed, the effect was just as prompt, and Vogl therefore thinks that the cortex is the true seat of the drug's action However this may be, it now appears that we have a remedy which is able to abolish Cheyne-Stokes's respiration as quickly as morphia abolishes cardiac asthma

The Campaign against Vivisection

The Vienna Society for the Prevention of Cruelty to Animals has again been giving a lot of attention to the old problem of vivisection The public has been pressed to take action to stop all experiments on animals in this country, but as these are performed only in university laboratories and institutes, and only by competent investigators, the reason for the Society's sudden activity was not at first evident The precautions required both by the Government and by the University do not allow any true vivisection—that is to say, bloody or mutilating experiments on living creatures—without sufficient anæsthesia, and an anæsthetic is required by law, except where lower animals such as frogs are used On the other hand, the law does not prevent research laboratories from using mice, rabbits, cats, and dogs for testing vaccines and serums, this not being regarded as vivisection, and it has become evident that the campaign, conducted by the Society for the Prevention of Cruelty to Animals, was only a sham fight, being mainly aimed against vaccination, which is almost compulsory in this country. The Society's circuitous plan was to make the preparation of calf's lymph unlawful under the guise of forbidding vivisection, but, of course, the medical authorities lost no time in telling the public what all this implied, and the attack upon the liberty of teaching and research has definitely failed

Nutrition and Lithiasis

At the last meeting of the Vienna Medical Society Prof Tadasu Saiki, of the University of Tokio, read an interesting paper on the correlation between malnutrition and disease, and demonstrated a series of calculi taken from the kidneys, bladder, and gall-bladder of animals fed on a diet free from vitamin A. Whereas in human beings deprivation of this vitamin leads chiefly to osseous changes, the effect on animals is often to produce lithiasis The extraordinary thing is that, according to Dr Saiki, these can be made to disappear if the animals are again given an adequate supply of the missing vitamin, the stones are apparently redissolved In another series of experiments at the Japanese Institute of Nutrition (of which Dr Saiki is the director) the animals were fed on food not free from vitamin A, but poor in it. It was found that after a long period—up to 280 days—these animals developed an induration of the tissues, whilst in several instances formation of distinct cancer tissue was noted These experiments seem to support the old theory that organs undergo malignant changes as a result of insufficient nourishment In the discussion which followed, Prof Pirquet, who translated Dr Saiki's address from English into German, pointed out that this Japanese research ought to be followed up in the areas known as "stone districts" It would be very interesting if it were shown that the food of the people in these districts was deficient in the way suggested

Spread of Influenza in Austria

For some time almost the whole of Central and Western Europe has been the hunting-ground of influenza, and the epidemic has at last reached Austria There are now over 30,000 cases here, but the mortality is happily very low The present *genius morbi* is characterised by sudden high pyrexia (over 40° C), great prostration, and rapid recovery, whilst an intense hyperæmia of the fauces and inflammation of the upper respiratory passages are always present A frequent complication is otitis of a mild type, and also suppurative inflammation of the accessory nasal sinuses Apart from influenza, we are at present suffering from an outbreak of measles, which is of rather severe type, and commonly leads to aural and pulmonary complications

The Value of X Rays in Diseases of the Ear

At a recent meeting of the Vienna Society of Rontgenology Dr Otto Mayer dealt with radiographic examinations of the temporal bone This has two objects—namely, to define the anatomical structure of the bone and to ascertain its pathological condition The anatomical structure can be made out very definitely, and before operating the surgeon can get exact information about the position of the sinus sigmoideus, the aeration of the mastoid process, and the presence of solitary air-cells To find out how much destruction has been wrought by an acute or chronic otitis is only possible if the radiographic appearances are correlated with the clinical findings, which is true, of course, of other investigations with X rays At the Vienna Otological Clinic it has for several years been the practice to take a radiogram in every case of inflammation. In severe cases, when the question of operation or conservative treatment is raised, the X ray findings are decisive In the difficult cases of otitis with few or no symptoms such an examination will often convince patient and surgeon that active interference is required, whilst in other cases it may show that disturbing symptoms arise from some other cause Less importance is attached to radiography in non-surgical diseases of the ear, for the appearances seen in otosclerosis or catarrhal deafness are not by no means characteristic There is no doubt, however, that in otology much information concerning pathological processes can be gained by cooperation of the radiologist with the physician and the surgeon.

IRELAND

(FROM OUR OWN CORRESPONDENT)

The Duties of the Coroner

THE Coroners (Amendment) Act, which has recently received the assent of the Governor-General of the Irish Free State, has made several important modifications in the law The duty is laid upon the coroner to hold an inquest on a body lying in his district when there is reasonable cause to believe that the person has died a violent or unnatural death, or has died a sudden death of which the cause is unknown, or that he has died in prison or in such place or in such circumstances as to require an inquest under any Act other than the Coroners (Ireland) Act, 1846 Secondly, in other cases than those just recited, when the coroner is informed of the death within his district of a person who was not attended in his last illness by a qualified practitioner, or in regard to whom a medical certificate of the cause of death is not procurable, he may inquire into the circumstances of the death of such person, and if he is unable to ascertain the case of death he may, if he thinks fit, hold an inquest In case of these inquiries being made, he is empowered to order fees to be paid for any investigation, including a post-mortem examination, undertaken at his request by a *medical practitioner* The maximum fees payable to medical practitioners, both for post-mortem examinations and for giving evidence, are: (1) for giving evidence without making a post-mortem examination, two guineas, (2) for making a post-mortem examination and reporting the result thereof, without giving evidence, three guineas, (3) for making a post-mortem examination and giving evidence, four guineas Provision is also made by which the Minister for Justice may, on request from the coroner, make arrangements to supply him with expert assistance

With certain specified exceptions, which cover most cases from which a criminal charge might arise, the coroner may hold an inquest without a jury The number of the jury in other cases is to be not less than six, *nor* more than 12 Moreover, in the event of disagreement, if the minority be not more than two, the coroner may accept the verdict of the majority In other cases of disagreement he must summon a fresh jury and begin the inquest again The duty of visiting the body is taken off the jury and put on the *coroner* In cases where a coroner has reason to believe that a death has occurred in or near his district in such circumstances that an inquest ought to be held, while owing to the destruction of the body by fire or otherwise, or to the fact that the body is lying in a place whence it cannot be recovered, the ordinary procedure cannot be followed, he may report the circumstances to the Minister for Justice, who may, if he thinks fit, direct an inquest to be held

An important change is made to avoid the inconvenience of a coroner's inquest and a magisterial investigation being held simultaneously in regard to the same occurrence. In the event of the coroner being informed that any person has been charged with the murder, manslaughter, or infanticide of the deceased, he shall adjourn all further proceedings until the criminal proceedings have concluded, when he may, if he thinks necessary, resume the inquest It is made the duty of every council which has power to appoint a coroner, within 12 months from the passing of the Act, to consider, and if it seems desirable, alter the salary or salaries of the coroner or coroners appointed by such council, always provided that the salary of an existing coroner shall not be diminished

It will be seen that the various changes made by the Act all tend to render the functions of the coroner more useful to the community.

County Medical Officers of Health

A deputation from the General Council of County Councils waited on the Minister for Local Government and Public Health last week to discuss the appointment of county medical officers of health Senator P Kenny, who introduced the deputation, stated that the General Council of County Councils had, in 1923, approved of the appointment of these officers In doing so they followed the recommendations of the Irish Public Health Council, which suggested that half the cost should be borne by the State and half by the county councils The Act of 1925, however, put the entire cost on the county councils There was a heavy financial strain on the councils at present, and he asked that the question of dividing the cost between the State and the local authorities should be reconsidered In reply, the Minister (Mr James Burke) recognised the fact that the present opposition of the councils was due to a temporary difficulty He had no desire to press hardly on them, but as the Act had been passed, it was his duty to enforce it The present medical officers were not able to cope with the situation, particularly as regards the preventive side of the medical service When fevers broke out the local officers had not got adequate machinery to deal with them Then there was the commercial aspect which would become more important as time went on At present Irish produce enjoyed a very favourable position in the English market but there was a tendency to criticise the conditions under which foodstuffs were produced If the standard of inspection in the Free State was not raised to the level of English inspection it was quite possible that their produce would be put under a ban, particularly pork and butter The Minister stated that any additional expense above the salary of the medical officer would be shared equally by the State

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DONATIONS AND BEQUESTS—Mr. John Daniel Rowlands, of Cardiff, left £1000 to Cardiff Royal Infirmary—Mrs Mary Jane Gibbons Newcastle-on-Tyne, left £300 to the Home for Destitute Crippled Children, Salters-road, Gosforth, £500 each to the Royal Victoria Infirmary, Newcastle-on-Tyne, and the Wesleyan Missionary Society, £300 each to Muller s Orphanage, Bristol, the Northern Counties Orphan Institution for Boys and Girls, the Fleming Memorial Hospital, and £210 to St Dunstan's Home The residue of the property for distribution among such charities as the executors shall determine—Miss Mary Sarah Phillips, of West Mall Clifton Bristol, besides many other bequests, gave £1200 to the Bristol Royal Hospital for Sick Children and Women £1500 to the National Lifeboat Institution for a boat to be named the "Augustus Phillips"; £100 each to the Bristol Royal Infirmary and the Bristol General Hospital, and £300 to Dr Watson Williams and his wife "in deep appreciation of the great and unfailing goodness during my long and serious illness"

Correspondence.

"Audi alteram partem."

THE TREATMENT OF HERNIA

To the Editor of THE LANCET.

SIR,—Prof E M Cowell, in his Hunterian lecture on Hernioplasty, has raised some interesting points, for the question of the recurrence of hernias after operation seems to be somewhat in the air at the present moment There is, however, one point in Prof Cowell's method of treatment which he does not make clear On what principles does he choose his patients for performing his "flap operation"? The fact that he has done the operation 201 times in the course of two years seems to imply that he employs his method as a routine in all cases But if so, is this really necessary? I think most surgeons are agreed that for the great majority of patients, that is to say for those with an ordinary oblique hernia, the removal of the sac is the prime necessity and that if this is done properly the details of the rest of the operation are comparatively unimportant It would be unnecessary, therefore, to perform a hernioplasty as a routine In my own experience recurrences of hernia have been usually due to a failure either to remove the sac or to realise that the hernia was direct

Prof Cowell also implies that the operation of fascia suture as described by Gallie and Mesurier is unpractical and capable of improvement I have used their original technique[1] in the treatment of a number of extreme cases of hernia and have found that with a little practice the operation is eminently practical and satisfying It is for use in the really difficult cases that their technique was devised, and I am sure that the substitution of short strips for long ones is not likely to be an improvement.

I am, Sir, yours faithfully,

London, March 7th, 1927 GEOFFREY KEYNES

To the Editor of THE LANCET.

SIR,—In the very admirable Hunterian lecture on Recent Advances in the Surgery of Hernia delivered by Prof E. M Cowell and published in THE LANCET of March 5th, one sentence should, in my opinion, not be allowed to pass without comment This sentence reads "fascia is a slipping tissue and is not easy to manipulate as described by Gallie and Le Mesurier"

I have used the method described by Gallie and Le Mesurier, since its publication in the *British Journal of Surgery*, for large ventral, incisional, and other types of recurrent hernia It has also been used constantly in appropriate cases by my colleagues The fascial sutures are quite easy to manipulate

For medium-sized or small hernias the "improvements" on the method may be useful, but for very large and difficult hernias, it will be found that success will be uniform and complete in proportion to the exactitude with which the details given by Gallie and Le Mesurier are being followed

I am, Sir, yours faithfully,

London, W, March 8th, 1927 T. P DUNHILL

FEMORAL THROMBOSIS FOLLOWING INFLUENZA

To the Editor of THE LANCET

SIR,—The following case has recently been under our care

A man, aged 37, was seen on Jan 25th, 1927, when he complained of chilliness, headache, pain in the loins and between the shoulder blades, and slight pain in the left chest He had anorexia, his tongue was furred, his temperature was 102° F. and pulse 106 The bowels had been open and there were no physical signs A diagnosis of influenza was made

On Feb 3rd, after his temperature had been normal for two days, he was allowed to rise On the 7th he complained of severe pain in the left leg This pain had commenced early the previous morning in the upper part of the calf and had gradually become worse On examination the left leg was found to be considerably swollen and tense from Poupart's ligament to the foot, and showed a purplish red discoloration There was no difference in temperature between the two legs, and there was pulsation of the posterior tibial artery on both sides The leg was tender over the upper part of the calf, and to a lesser extent, over Scarpa's triangle On the 8th the veins over the whole of the left side of the anterior abdominal wall were more prominent than those on the right side, and on the following day the left side of the abdomen was tender, slightly rigid and discoloured, suggesting a thrombosis of the lower part of the external iliac vein

At 8 30 P M. on the 10th, after the patient had had an enema in the morning with a good result, he stated that he had vomited everything since midday and was feeling very uncomfortable On examination, the abdomen was uniformly distended and tympanitic There was no rigidity or pain on pressure, and his tongue was furred and breath offensive, pulse 84, temperature 99° A turpentine enema was given with no relief The next day he was relieved of his vomiting by fluid diet and tincture of iodine, and was given eserine gr 1/50 every six hours which did not relieve his distension until three days later, when a turpentine enema was administered with a good result

The condition of his leg is showing a steady improvement Possibly a reader of THE LANCET could suggest the cause of the tympanites?

We are, Sir, yours faithfully,

T. R THOMSON

Lamberhurst, Feb 28th, 1927 C G E PLUMSTEAD

THE BLOOD-GROUPS OF "IDENTICAL TWINS"

To the Editor of THE LANCET

SIR,—Mr. Douglas A Mitchell in his letter which appears in THE LANCET for March 5th (p 513) suggests the possibility of antagonistic "blood-grouping" of the fœtus being a cause of eclampsia He will find some discussion of this question in an article by L Hirszfeld entitled "Konstitutions serologie" which appeared in *Die Naturwissenschaften*, Berlin, 1926, xiv., 17-25

I am, Sir, yours faithfully,

CYRIL C BARNARD,

Librarian, London School of Hygiene and Tropical Medicine

Endsleigh gardens, Euston road, W C, March 4th, 1927

BLACKWATER FEVER IN ENGLAND

To the Editor of THE LANCET

SIR,—Dr P Manson-Bahr's article on Blackwater-Fever in England (THE LANCET, Feb 5th p 273) is of of very great interest but does not account for quite all the conditions met when blackwater fever is found in its own native habitat, of course much of the theory is impossible to controvert but there are almost epidemic forms of blackwater that do not harmonise with the subtertian *causation* I recall a case of a subject who left a certain station near Duala because two of his fellow assistants had died of blackwater fever ten days after coming on board the mail boat, he went down with a sudden and violent attack of the fever With regard to the blood picture, I have never seen the blood plasma in any case of *malaria* present the same appearance as it does in blackwater fever In malarias the corpuscles are broken up and the blood is full of detritus, but in blackwater fever the corpuscles are not broken up, simply drained of hæmoglobin and coloured streaks of hæmatin are free in the plasma There is not even a suggestion of the hæmatin in the malarial blood, so that it does not appear that the hæmoglobinuria is due to an overdose of hæmatin in the blood In blackwater fever the hæmolysis appears to take place suddenly on the onset of the pyrexia. The number of malarial cases which are treated with quinine by mouth and by injection are enormous The cases of blackwater fever are few, and when a patient has been treated with quinine after an attack of blackwater fever, and the malaria-infected corpuscles are seen breaking up, no recrudescence of the blackwater fever is found to occur The blood picture in blackwater fever is typical and quite unlike any ordinary malaria blood and when the blackwater fever disappears an ordinary malaria infected blood is still to be seen Dr Manson-Bahr's theory is most ingenious, and may account for some cases but it is not quite sufficiently in accordance with observed facts to be wholly conclusive Many of the symptoms and characteristics of blackwater fever are very allied to yellow fever and tempt one to imagine a connexion, but the study of Dr Manson-Bahr's cases occurring in England eliminate that possibility

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[1] Brit Med Jour, Jan 29th, 1927

Following is an account of blood film described with the film under observation at the time of writing.—

The red corpuscles are small and colourless A few corpuscles are seen containing malarial parasites "en vacuole" The blood plasma shows streaks of bright-red colouring matter, looking like transuded contents of red corpuscles as if the hæmoglobin of the corpuscles had *transferred itself to the plasma* The plasma contains a large quantity of high refracting granular matter in clumps and in fine granules There is present, also, an enormous number of polynuclear cells, rather larger than red corpuscles Nuclei deeply stained, nuclei slightly granular, and arranged either in fours or in pairs in each cell, when in fours they are equal in size and regularly placed when in pairs, forming a double horseshoe, equal and opposite, some few cells with large, single and irregular shaped nuclei

The whole question is most important because it raises the point of whether quinine should or should not be administered for severe malaria Good results can be obtained from phenacetin in malaria and possibly with less danger Again, we have heard much argument in regard to the prophylactic value of quinine Personally, when in W Africa I have always taken quinine religiously but notwithstanding have had two severe attacks We know all statistics appear to prove the prophylactic value of quinine but it would be interesting to learn the unbiased views of modern West African medical officers upon this *point* A discussion upon the subject in your columns might be very instructive

During five years work on the coast of *Africa* I had always a microscope at hand with me and examined every blood-infected case that I had to deal with I never saw any other medical man using a microscope in daily practice except in the hospitals of Free Town Accra, Calabar and Lagos The medical officer in Africa ordinarily has not the time at his disposal for much microscope work

I am Sir, yours faithfully,

Southwick, Sussex, March 3rd 1927 E. F GREENE

OPHTHALMIC BENEFIT

To the Editor of THE LANCET

SIR—I have read the letters in your late issues with interest and it seems to me that the question before us is of great importance as the Ministry of Health and the approved societies are seeking to come to a satisfactory arrangement at the present moment and we all want to see the problem clearly and dispassionately settled

First of all "Every man to his own trade" as Mr Lumsden points out An *optician* is a maker of glasses and his business is commercial An *oculist* is versed in the knowledge of the defects and diseases of the eyes and being a fully qualified medical *man* understands the relation of the part to the whole for the eye is only a part of the body and suffers with it both temporarily and permanently The workman needs and demands the same—viz, "the best"—as the rich man and the educated man, and greatly objects to be put off with the "second best"; by his insurance he can afford the best, especially since a large number of first-rate oculists have modified their fees to £1 1*s* for his special benefit He also demands an impartial and truthful opinion, and there should be no room for doubt Opticians should not be allowed to test the eyes and supply the glasses as well, they should be removed from the faintest suspicion of self-interest Likewise, no medical man should be allowed to send a patient to a member of his own firm, excepting in areas where no oculist exists

The opticians are aiming at becoming a profession with diplomas and Government registration, and they instance the case of the dentist But there is no parallel; the dentists have no body of men above them to compete with, they *are* specialists and their education is complete, prolonged, and expensive, and many are fully qualified in medicine and surgery as well as in their specialty

Are the opticians willing to become medical men? If so, why not? Several have become so (of course, they become oculists) Are they willing to give up their advertising and shops and become a profession? Would it pay them? I am convinced that professions and commerce can never combine as the standards are different Why do opticians desire to be third-rate oculists? I imagine to be able to charge fees: but surely they do extremely well financially in selling their goods, and surely the burden, the danger, the responsibility of treating eyes will prove the small fee they charge to be inadequate

The best approved societies seem well pleased with the present arrangements, which give complete satisfaction The only question is, can they afford it? I think there is no doubt they can, but if not surely some insurance scheme can be devised which would easily finance the present moderate charge Certain societies refuse the doctor's certificate and send their clients to the optician first and if the optician says the case is beyond him he (the optician) refers the case to an oculist, and far more often to the hospital, and so a rich society can palm off its clients on *charity (subscribed to in many cases by poor* people); many are the cases that I have had sent to me at the hospitals where I work Of course, the societies do not do this directly; it is done by the optician, but the result is to save a small fee and enable a rich society to become richer by using *charity*. This should be stopped

In reference to Mr Caddy's remarks on refraction, and to presbyopia generally, it is said that opticians do the work very well, also that mere presbyopia does not need skilled knowledge I do not say that the best opticians cannot do refraction well—I think the best can; nevertheless, a "perfect opinion" can only be obtained from the "perfectly educated" Glaucoma can exist with good vision, at least for a *time* It is stated that 95 per cent of an oculist's income is derived from refraction cases, then it is obvious that if you subtract the 95 per cent no oculist could live and ophthalmologists would become extinct Why should the inferiorly educated and commercial body of men be rewarded disproportionately? Presbyopia may be the simplest work we do but when a small correction is added to the presbyopic glass for a slight defect the improvement is great Also much judgment is needed as to the amount of the correction, no rule of thumb can apply, as the ciliary muscle varies in strength and health *in different* cases and the physician-oculist is a better judge than the optician

No one can call our profession commercial when he knows that at the hospitals we treat tens of thousands of patients (many of whom can afford to pay fees) *for nothing* or little, year in and year out.

I wish to remain incognito but enclose my name and address—I am Sir yours faithfully,

March 8th, 1927 F R C S OCULIST

Obituary.

FRANCIS SHILLINGTON SCALES, M D Camb

Many friends and many pupils will have seen with regret the announcement last week of the death at his residence in Cambridge of Dr Shillington Scales, who had been in bad health for a considerable period

Dr Scales was the son of Mr George J Scales, and was born in London and educated privately until he went to Jesus College, Cambridge At Cambridge he took honours in the Natural Science Tripos and later was Raymond Horton-Smith prizeman He completed his medical education at Middlesex Hospital and became attracted by microscopy, which he took up as a special study In 1905 he published a book on "Elementary Microscopy," which was followed in a few years by another treatise entitled "Practical Microscopy" Having proceeded to the M D degree in 1912, he became lecturer in microscopy at the Westminster Hospital Medical School, continuing, also, a close connexion with the Royal Microscopical Society, where he was a Vice-President after holding the post of curator and hon secretary He made frequent contributions on his subject and also upon radiology to scientific literature, and some seven years ago became University lecturer at Cambridge in Medical Radiology and Electrology In connexion with this post he was appointed hon physician in charge of the X ray and electrical department at Addenbrooke's, while he acted as examiner and cretary to the Board of Examiners for the special loma given by the University in those subjects a teacher he was a great success "He had ained himself" writes a recent pupil, "to a very xact use of language and he expected the same accuracy from his students He had developed a vivid word imagery to describe the various appearances or morbid conditions as seen in X ray photographs Here his characteristic expressions of surprise when something unexpected presented itself will remain in the memories of those he taught, as well as the aptness of his Irish stories"

It is a serious loss to the medical profession and to the special studies of Cambridge University that Scales's valuable work in respect of the Diploma of Electrology and Radiology, both in the lecture rooms and in Addenbrooke's Hospital, should be so sadly closed

LOUIS HEMINGTON PEGLER, M.D, C M Edin, M R C S Eng

After living for some years in retirement Mr L H Pegler died at his home at Exeter on Feb 26th The son of Daniel Pegler, he was born at Colchester in 1852 and was educated at the Colchester Royal Grammar School and at University College, London For his medical training he went on to the University of Edinburgh and graduated in 1878, later taking the diploma of M R C S Eng At the age of 28 Mr Pegler entered upon ten years' service with the Clay Cross Company which had a hospital as part of its equipment Soon after retiring from this appointment he began to specialise in aural surgery and for two years acted as registrar and pathologist to the Central London Throat, Nose and Ear Hospital in Gray's Inn-road The work there was in turn given up when in 1896 he became surgeon to the Metropolitan Ear, Nose, and Throat Hospital, on whose active list he remained until 1921 when, as senior surgeon, he retired to the consulting staff He was attached at one time and another to many smaller institutions, and from 1915–18 was in charge of the aural department of the Mile End Military Hospital The anatomical aspects of his work particularly attracted him and he published a map scheme of the trigeminal nerve, besides a number of articles in medical journals At the International Medical Congress held in London in 1913, Mr Pegler was curator of the laryngological museum and a member of the Congress Council He was also elected vice-president of the Section of Laryngology of the Royal Society of Medicine Outside this work in his own line he was interested in biology and especially in botany, besides having a taste for archæology and music

He married Maud Edith, daughter of Mr F W. Palmer, of Bedford

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Optical Practitioners' Registration Bill.

The text of the Optical Practitioners' (Registration) Bill presented in the House of Commons by Mr. West Russell has now been issued

Clause 3 of the measure provides that any person over 21 shall be entitled to be registered and receive a certificate as a registered optical practitioner under the Act who (*a*) satisfies the Central Optical Board of Great Britain that he holds a recognised certificate, or other evidence of qualification, prescribed by regulations of the Board as sufficient, and that he is of good character, or (*b*) satisfies the Board that he has practised optometry in Great Britain during the five years next before the commencement of this Act and passes to the satisfaction of the Board's examiners a practical examination in optometry deemed by the Board sufficiently comprehensive to safeguard the public, together with evidence of good character, provided that the applicant applies for registration within six months after the commencement of the Act, or (*c*) having completed the prescribed training, has received from the Board's examiners a certificate of competency in the practice of optometry, and produces the same to the Board, and satisfies them that he is of good character The possession of such certificate will entitle the holder to practise optometry and give certificates relating to visual acuity or visual defects which are to be recognised by any local or central authority, or Government Department, in any part of Great Britain

Clause 4 provides for reciprocal arrangements between the Central Optical Board of Great Britain and any board of optical registration, or other competent authority, in any foreign state, or any of His Majesty's Dominions or Colonies, for the recognition of persons entitled to practise under the Act

Under Clause 9 it is provided that any optical practitioner who applies to be registered under the Act shall pay an initial fee not exceeding £5 for registration, and thereafter an annual fee not exceeding £3 for renewal of certificate The Board may charge for any certificate or other document issued, or in respect of any services performed by them, such fees as they may prescribe No person who, having held a certificate under this Act, has ceased for a period of at least two years to hold such certificate will be entitled thereto unless he furnishes to the Board a satisfactory reason for having omitted or ceased to obtain such certificate, together with any proof of good character in the meantime The Board (under Clause 10) can cause to be erased from the register (1) the names of dead persons (2) any entry proved to have been fraudulently or incorrectly made, and (3) any member who is in default in payment of any prescribed fees

The Board, subject to the provisions of the Act, is empowered by Clause 11 to make regulations regarding the removal of persons from the register, the prescribing of fees, the holding of examinations, the prescribing of training in optometry, the issue and cancellation of certificates, the practice of advertising by registered optical practitioners (provided that such regulations shall not prevent the publication of educational matter concerning vision) and so forth Such regulations are to be laid before Parliament for a specified period, and if an Address is presented within 21 days praying that they be annulled, His Majesty in Council may annul them accordingly, but without prejudice to the validity of anything previously done thereunder No person is to be suspended or removed from the Register without being given an opportunity of being heard by the Board, either personally, or with the assistance of counsel Within three months of suspension or removal an aggrieved person may appeal to the High Court whose order shall be final and conclusive, and not subject to appeal to any other court

Persons found guilty of offences under the Act are to be liable on summary conviction to a fine, not exceeding £50, with or without imprisonment, for a period not exceeding three months

In a schedule to the Bill it is provided that the Central Optical Board of Great Britain shall consist of 12 members On its first constitution the Board will be summoned by the Minister of Health and consist of one person appointed by the

General Medical Council, one by the Minister of Health, one by the Scottish Board of Health, one by the Board of Education, and eight others, all of whom shall be optical practitioners, appointed by the Minister of Health after consultation with such associations or organised bodies of optical practitioners as represent to the Minister that they desire to be consulted Such Board will hold that office for two years from the commencement of the Act The second and all subsequent Boards will be constituted in a similar manner to the first, except that the eight optical practitioners will be elected by members of the register from among persons whose names appear on the Register

The Bill is intended to apply to Scotland, but not to Northern Ireland

HOUSE OF COMMONS

WEDNESDAY, MARCH 2ND

Scottish Approved Societies and Dental Treatment

Mr **SCRYMGEOUR** asked the Secretary of State for Scotland whether he was aware that many of the approved societies had been unable to meet their liability for dental treatment under the National Health Insurance Act owing to increased charges, whether such charges were negotiated with the dentists by the Scottish Board of Health without any consultation with any of the other interested parties, and whether, in view of the protests being made, he would reconsider the method of negotiation and suspend the present scale of charges —Sir **JOHN GILMOUR** replied Dental treatment is not a statutory benefit, and approved societies are under no obligation to provide it, but they may do so if they have surplus funds available for the purpose It is not the case that the charges referred to were negotiated by the Scottish Board of Health The scale was agreed by a Joint Dental Committee consisting of representatives of dentists and approved societies' interests I have accordingly no power to take any action such as is suggested in the last part of the question

Small-pox and Vaccination

Mr **GROVES** asked the Minister of Health what were the ages of the nine persons on whose death certificates the word vaccination, or vaccinia, appeared as the cause or one of the causes of death in 1925 and in 1926, and what were the ages of the cases in 1925 and 1926 in which such certification as the cause of death was subsequently withdrawn —Mr **CHAMBERLAIN** replied The ages of the persons referred to in the first part of the question were, respectively, 5½ months, 8½ months 3 months, 5 months, 5 months, 9 weeks, 17 days, 1 month, 6 months The ages of the persons referred to in the second part were, respectively, 4 months, 4 months, 7 weeks, 1 month

Mr **GROVES** asked the Minister of Health whether, in the case in 1925 and the three cases in 1926 in which certification of vaccination or vaccinia as the cause of death was subsequently withdrawn by the certifying practitioner, such withdrawal was the outcome of correspondence with a representative of Somerset House or an official of his department, and how long after vaccination death took place in these four cases —Mr **CHAMBERLAIN** replied The answer to the first part of the questions is in the affirmative, but I should make it clear that the correspondence undertaken by the Registrar-General in these cases consisted solely of a routine enquiry addressed to the certifying practitioner as to whether he was of opinion that the cause of death was in any way associated with vaccination This is in accordance with the practice which has been followed for many years of addressing inquiries to certifying practitioners respecting any indefinitely certified causes of death As regards the second part of the question, the period between vaccination and death was seven days in two of the cases, and 9 and 17 days respectively in the other two

Fatal Railway Accidents

Mr **DAY** asked the Minister of Transport the number of accidents that had resulted fatally for the 12 months ended to the last convenient date to passengers using or workmen employed on the railways of Great Britain —COLONEL **WILFRID ASHLEY** replied During the year ended 30th Sept last, the number of fatal accidents to passengers using, or workmen employed on, the railways of Great Britain was 71 and 223 respectively

Army Disability Cases

Sir **AYLMER HUNTER-WESTON** asked the Secretary of State for War the number of soldiers discharged from the army during the year 1926 under the headings for wounds and for diseases respectively, and the number that were granted disablement pensions under each heading —Sir L **WORTHINGTON EVANS** replied The total number of disability cases (including those of men already discharged) dealt with by the Chelsea Commissioners during the year 1926 was 2516 105 permanent pensions, and 701 temporary pensions were granted No distinction is made between wounds and injury cases on the one hand and disease cases on the other, and I regret that separate statistics are not available

THURSDAY, MARCH 3RD

Ministry of Pensions Hospitals

Mr **ALLAN PARKINSON** asked the Minister of Pensions whether any hospitals were to be closed during the financial year 1927-28, and, if so, where they were situated —Major **TYRON** replied No arrangements have at present been made for the closure of any hospital during the next financial year The hon Member will, however, realise that the requirements of the Ministry in regard to hospital accommodation can only be determined from time to time by experience of the demand for this form of treatment

Mr **THOMAS KENNEDY** asked the Minister of Pensions what number of Ministry of Pensions hospitals he proposed to retain definitely to ensure that adequate facilities for in-patient treatment were available for so long as such might be necessary —Major **TRYON** replied It is not possible as yet to determine what will prove to be the definite, that is the ultimate, requirements of the Ministry in regard to hospital treatment, nor in what manner those requirements should best be met

Mr **THOMAS KENNEDY** asked the Minister of Pensions what was the total number of hospitals utilised for the treatment of war disabilities and the total bed accommodation provided as at Feb 1st, 1927 —Major **TRYON** replied On the date referred to there were 20 hospitals under the entire control of the Ministry with 4388 beds, and 17 other hospitals, not under the control of the Ministry, whose accommodation was wholly reserved for pensioners containing 2158 beds In addition, 8152 beds were occupied by pensioners under treatment at the charge of the Ministry of Pensions in sanatoria and general or special civil hospitals

Number of War Pensioners

Mr **BECKETT** asked the Minister of Pensions the number of pensioners on Feb 1st, 1926 and 1927 respectively, and the number who had died during that period —Major **TRYON** replied On Dec 31st, 1925 and 1926—the nearest dates to those stated in the question for which figures can be given—the number was 1 058,000 at the earlier date and 1,022,000 at the later date The number of pensioners whose deaths were notified during the year 1926 was 19,550

Small-pox in England and Wales

Mr **DAY** asked the Minister of Health the number of small-pox cases notified in Great Britain for the three months ended to the last convenient date —Mr **CHAMBERLAIN** replied The number of cases of small-pox notified in England and Wales during the 13 weeks ended Feb 19th was 5465, but this figure is subject to revision

Draft Regulations under Lead Paint Act

Mr **VIANT** asked the Home Secretary the dates of the conferences held since Dec 15th, 1926, with representatives of the painting and decorating industry, for the purpose of arriving at agreement in connexion with the circular recently issued for the regulation of the use of white lead in paint, and whether there was unanimity on the points raised in the circular —Sir W **JOYNSON-HICKS** replied I am glad to have this opportunity of correcting a misunderstanding which has arisen in connexion with the explanatory letter issued with the draft Regulations under the Lead Paint Act The letter stated that the terms of the Regulations had been discussed at a series of conferences with the industry at which a complete agreement was arrived at The reference here was to certain conferences which had taken place in 1922 for the purpose of determining what Regulations could be made in the event of the Geneva Convention being ratified, but the statement has apparently been taken in some quarters to imply that conferences had been held subsequently to the passing of the Act, and that the draft Regulations were the outcome of a fresh agreement This was not the case, and no such implication was intended or conveyed The sole object of the circular was to remind the industry of the previous discussions and the agreement then reached, which applied, not only to external painting but also to internal painting during the interval before the prohibition was to take effect Since the issue of the draft Regulations there has been a further meeting with representatives of the industry This resulted, I am informed, in general agreement on the points discussed

Danger from Steam Tractors

Mr **WALTER BAKER** asked the Home Secretary whether he had received representations from the Minister of Transport respecting the danger caused by the emission of smoke, steam, and sparks by steam tractors, and what action he had taken or proposed to take —Sir W **JOYNSON-HICKS** replied Yes Sir, and I propose to issue a memorandum to chief constables reminding them of their powers

Sanitary Accommodation in L C C Schools

Mr **DALTON** asked the President of the Board of Education whether he was aware that in new schools now being built by the London County Council the sanitary accommodation was below that of the Board's Building Regulations of 1914, and whether he would take steps to see that the standard hitherto enforced in respect of the building and remodelling of public elementary schools was preserved —Lord **EUSTACE PERCY** replied I am aware that, in the case of some girls' departments, the County Council have provided rather less sanitary accommodation than that previously required under the Building Regulations of 1914 Authorities are free to suggest a departure from the current practice where it appears to them desirable to do so, but no individual proposal is approved until the Board are satisfied that the accommodation of all kinds to be provided is adequate, having regard to the particular circumstances of the case

Reaction Caused by Vaccination

Mr **WINDSOR** asked the Minister of Health whether he was aware that the medical officer of health for Sheffield had stated that, in spite of the utmost precaution on the part of the vaccinators, vaccination during the recent small-pox scare produced severe reaction, causing temporary illness and a good deal of swelling and pain, whether similar reactions had followed vaccination in other towns, and whether he would stop the issue of vaccine lymph which might cause illness of this kind —Mr **CHAMBERLAIN** replied As regards the first two parts of the question, I would refer the hon Member to answers already given As regards the last part, I am advised that the results obtained from the use in Sheffield of the vaccine lymph issued by the Government Lymph Establishment have been uniformly successful, and among the many thousands of vaccinations performed with this lymph, no case has been reported to my Department in which a severe reaction has been attributed to the lymph. I have no control at present over proprietary lymphs, but regulations for the standardisation of all vaccine lymphs used in this country will come into force when the Therapeutic Substances Act, 1925, becomes operative

Deaths from Influenza

Mr **DAY** asked the Minister of Health the number of deaths in Great Britain resulting from influenza for each of the three months ended to the last convenient date, giving the figures for London and each of the principal provincial towns —Mr **CHAMBERLAIN** replied The figures asked for, so far as they are available for England and Wales, are contained in the tabular statement below

Deaths from Influenza—England and Wales
(Provisional Figures)

Towns of over 200,000 population	During the four weeks ended—			Total
	Dec 25th, 1926	Jan 22nd, 1927	Feb 19th, 1927	
105 Great Towns	249	1055	3292	4596
London	61	423	754	1238
Birmingham	9	20	42	71
Liverpool	9	16	39	64
Manchester	11	22	36	69
Sheffield	5	15	21	41
Leeds	8	10	23	41
Bristol	8	15	146	169
West Ham	3	12	60	75
Hull	1	5	27	33
Bradford	2	3	31	36
Newcastle-on-Tyne	3	5	7	15
Stoke-upon-Trent	1	2	19	22
Nottingham	1	1	91	93
Salford	1	6	16	23
Leicester	—	4	46	50
Portsmouth	3	5	24	32
Cardiff	2	22	52	76

Juvenile Delinquency Commission's Report

Brigadier-General **MAKINS** asked the Home Secretary when the Report of the Commission on Juvenile Delinquency will be available —Sir W **JOYNSON-HICKS** replied I understand that the Committee is likely to present its report towards the end of this month

Diphtheria and Scarlet Fever

Mr **DAY** asked the Minister of Health the notifications of diphtheria and scarlet fever, and the deaths registered from these diseases, for each of the years 1911 to 1926, inclusive —Mr **CHAMBERLAIN** replied The provisional notifications of diphtheria and scarlet fever in England and Wales for 1926 are as follows —Diphtheria Notifications 51,067, deaths 2923 Scarlet fever Notifications 81,670, deaths 667 The corresponding figures for earlier years will be found in the Statistical Review of the Registrar-General

MONDAY, MARCH 7TH

Medical Services in the Army

Sir L **WORTHINGTON-EVANS**, Secretary of State for War, in moving that the House go into Committee of Supply on the Army Estimates, said that he was asking for a total sum of £41,465,000, which was £935,000 less than last year Vote 3, relating to medical services, showed an increase of £60,000 This was in part due to improvements in pay and conditions of service of army doctors For some years past the army medical service had not attracted sufficient young men to maintain the numbers required Complaints had been made by the medical profession, vigorously supported by the British Medical Association, of the inadequacy of pay, of the frequency of moves, and of the length of foreign service tours Many of these complaints seemed to have been well-founded, but though he took steps immediately it was some time before the new conditions could be put into force The Cabinet appointed a Committee to inquire into the pay and conditions of service in the medical branches of the three fighting services, as it was impossible to deal with one without the others Following the report of the Committee, the Royal Warrant of July of last year was issued, under which improved terms and conditions of service had been granted, and the British Medical Association was now recommending service in the Royal Army Medical Corps as a career for young qualified practitioners He still wanted more candidates, however In January last there was a larger entry, but there were still vacancies He wished to draw the attention of newly qualified medical men to two features of the new conditions Those who took up a house appointment could, under certain conditions, get an ante-date to their commissions, in other words, the service in an appointment of a hospital would count as service in the army The other innovation was that, after seven years' service, an officer could retire with a gratuity of £1000 This might be attractive to young doctors who wanted to see a bit of the world before settling down in civil practice, and to whose capital an addition of £1000 might prove extremely useful The army owed much to its medical officers, and he hoped that the reforms now operating would ensure a service as contented as it was efficient

Mr **MACPHERSON** said that praise was due to the Secretary for War because he had considered the position of the Royal Army Medical Corps Those who followed the fate of that service during the war knew what magnificent work it did The War Office were giving a little bounty to these men to come in, and they would come in willingly

Major **GLYN** said that he noticed in the Estimates that the working expenses of seven hospitals, exclusive of salaries and maintenance, amounted to no less than £1,112,000 That seemed to him to be rather a large sum of money for the number of beds which were equipped They all knew the need there was for economy and close inter-working between one service and the other. The Estimates Committee had gone into the matter and one of their recommendations was that there should be closer liaison between the services as regards hospital treatment That had been carried out, and no doubt great economies had been effected, but at the same time it seemed to him that £1,112,000 exclusive of salaries was too high a figure

Dr **VERNON DAVIES** raised the question of pension awards to men who were discharged from the army suffering from consumption He said that the question whether the disease was attributable to the conditions of service was one which it was impossible for the medical board at Chelsea really to decide No one could say when a consumption germ might gain entrance into the human system He understood that certain diseases were held as justifiable causes For instance, if a man had malaria, dysentry, or contracted a bad cold after exposure, or got pneumonia and then developed consumption, it was possible that the medical board would hold that case to be attributable And yet they would find that another man who had not had any of these diseases and who was working at the same time and under the same conditions would also develop consumption, and, therefore, it would be due to the conditions of service There was some other factor in the man himself If the War Office were perfectly logical they could take up the position that no case was due to the conditions of service But they did not take up that position, and their attitude had caused a great deal of dissatisfaction in the country There were three courses which the War Office might take in this matter First of all they might take a definite stand and say that it was impossible to prove in any case that consumption was due to conditions of service, and that therefore they would wipe it out altogether That might be a harsh, but it would be a very logical position Secondly, the War Office might schedule a number of conditions or diseases which could be held to be producing causes of consumption Thirdly —and this was the course which he would prefer—the War Office might institute a system of insurance under which every man in the service could be compulsorily insured against the possibility of contracting consumption. He urged upon the Secretary of State for War that this was a question that required consideration.

Lieut.-Colonel FREMANTLE said that he wished to congratulate the Secretary of State on the action he proposed to take in regard to the Royal Army Medical Corps. This had been a long standing source of trouble since the late war. As a result of the recommendations of a committee which sat on this subject certain improvements were made in the pay of the service last summer, and it was hoped that that would lead to better recruiting for the army medical service. The deficiency which had to be made up was very great. Before the war the establishment of the Royal Army Medical Corps in officers was something like 1000; since the war it was cut down to 900, and there were under 800 officers on the strength last year. This year only 15 candidates had come forward to fill 25 vacancies, so that they were still in a backward position. The Secretary of State in order to meet the case was appealing for short service officers. After a few years when these men had become useful officers they would be entitled to return to civil life with a gratuity. They were increasing, therefore, all their troubles, because they were carrying on with an elderly service increasing always in seniority. That made for great dissatisfaction among the officers, because the older men had to serve over and over again. This was one of the most serious points, to his mind, in the army position at the present time. They were faced with the possibility of a terrible scandal which would go to the root of popular confidence in the army if the country had to engage in a war at the present time. Were they going to be disappointed, as would seem on the surface likely, in view of the poor response so far made to the appeal of the Secretary of State? He was a sufficient optimist to hope that they need not be despondent. At any rate it was too early to judge the results of the new terms which had been offered. But there was one thing that was perfectly certain; they would not get young medical men to take commissions in the fighting services unless those services took direct and vigorous measures to catch hold of them. That could be done now if the campaign was pushed home. He hoped that the best recruiting officers possible would be sent into their own hospitals and medical schools to try and attract young medical recruits into the service. The Secretary of State had mentioned that day that there had been a reduction in the medical services of the Territorial Force in respect of the casualty clearing stations. On the face of it this was a most serious proposal. Great difficulty was caused in the late war because they found it necessary to improvise casualty clearing stations. The first shock of battle meant a large number of casualties, and if the clearing stations did not know their work great difficulties arose. There was not very much required to gather together such stations, but it was just the trained personnel that was necessary. While the framework might be cut down he did hope that the Secretary of State would make arrangements whereby the personnel would continue to be trained so that they might form a nucleus which would be available on the outbreak of war.

Sir L. WORTHINGTON-EVANS, replying to the debate, said that the question raised by Dr. Vernon Davies was one of the most difficult medical questions that could be raised and not one with which that Committee could usefully deal. The hon. member said that it would be logical though harsh to refuse pension in all such cases, but he (Sir L. Worthington-Evans) was glad that they did not do that. It was better to be wrong in some cases than to take up a position of that kind. It was not the fault of the administration that they made mistakes, but it was due rather to the incomplete knowledge of the medical profession in regard to the causes of consumption. He could assure Colonel Fremantle that the War Office was doing its best to follow the course he had suggested. They intended to go round the hospitals and medical schools in order to induce young medical men to enter the army medical service.

Imported Dogs and Rabies

Mr. DAY asked the Minister of Agriculture how many dogs had been imported in accordance with the Ministry of Agriculture's regulations during the six months ended to the last convenient date, and if any cases of rabies had been discovered during the time these animals were in quarantine.—Mr. GUINNESS replied: 388 dogs have been imported from abroad under licenses issued by the Ministry during the six months ended Feb. 28th last. One case of rabies was discovered among these dogs in a dog brought from India.

Ministry of Agriculture and Disinfectants

Lieut.-Colonel FREMANTLE asked the Minister of Agriculture whether, seeing that the test for disinfectants which had now been adopted was considered unsuitable and unreliable by the Admiralty, the War Office, the Air Ministry, and other large purchasers of disinfectants, he would consider the adoption of a more reliable test.—Mr. GUINNESS replied: I am not aware that the test for disinfectants, which the Ministry has adopted for use under the Diseases of Animals Acts is in any sense unreliable. It was adopted after full consideration and scientific advice as being a test conducted under conditions which resemble, as closely as possible, the actual conditions under which the disinfectants prescribed by the Ministry are used in practice.

Colonel FREMANTLE asked if this had been agreed upon in consultation with other Government Departments which were equally concerned in getting a reliable test.—Mr. GUINNESS: The requirements of the other offices are very different from those of agriculture.

Colonel FREMANTLE asked if it would be possible to have this matter reconsidered from the point of view of science, as some equally high authorities are against this radical change.—Mr. GUINNESS: We have prescribed this test on scientific advice supported by the Ministry.

Colonel FREMANTLE asked the Minister of Agriculture if he was aware that brands of disinfectants, which had been approved by the Ministry, were being freely sold to agriculturists in inferior strengths and not labelled in accordance with the Diseases of Animals Disinfection Order, 1926, so that the public were unaware of the proper strength at which to use such agents, and the intention of the statute was plainly defeated; and if he would give the number of samples of disinfectants tested for his department which had been taken from supplies purchased in the open market and the numbers of manufacturers against whom proceedings had been taken for non-compliance with the order.—Mr. GUINNESS replied: The answer to the first part of the question is in the negative. Agriculturists and others required to use approved disinfectants under any Order issued in pursuance of the Diseases of Animals Acts should be careful to see that the preparation they are obtaining for that purpose is labelled clearly as prescribed in the Disinfection Order of 1926. The enforcement of the Orders requiring the use of disinfectants rests with the local authorities. I have no information as to the number of samples of disinfectants taken by those bodies, nor as to the number of prosecutions instituted. No prosecutions have been undertaken by the Ministry.

Colonel FREMANTLE asked if the right hon. gentleman would consider the possibility of his officers taking samples in the open market which could be relied upon instead of samples sent to him which were manifestly cooked-up for the purpose.—Mr. GUINNESS: In the ordinary way the local authorities are quite able to take samples from the open market. It would lead to unnecessary expense to duplicate samples.

School Medical Service

Mr. HARRIS asked the President of the Board of Education what he considered was required to provide a local education authority with a complete medical service; how often a child should be inspected during the elementary school period, and what ailments should be included in the treatment scheme; and what was the standard aimed at by paragraph 6 of circular 1388 when it was laid down by the Board that the first aim of national policy should be the completion of the school medical service.—Lord EUSTACE PERCY replied: A complete school medical service for children in public elementary schools should provide for medical inspection, for following up cases of defect found in the course of inspection, and for medical treatment of defects. Local authorities are required to provide for the inspection of all children on admission to school, on attaining the age of eight, and on attaining the age of 12; provision should also be made for the inspection of special cases and the re-examination of children previously inspected. With regard to the last part of the question, it is not easy to define a rigid standard for a service comprising so many activities, but the hon. Member will find a discussion of the problems involved in chapter V of the Annual Report of the Board's Chief Medical Officer, for the year 1924.

Disability Discharges in the Navy

Lieut.-General Sir AYLMER HUNTER-WESTON asked the First Lord of the Admiralty whether he would inform the House the number of sailors discharged from the Navy during the year 1926 under the headings for wounds and for diseases, respectively; and the number that were granted disablement pensions under each heading.—Lieut.-Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied: During 1926, 1632 naval ratings and marines were invalided for disease and 93 for injury or wounds. The number who were awarded pensions was 600 approximately. I regret that statistics are not available distinguishing between pensions for injury or wounds and for diseases.

TUESDAY, MARCH 8TH

Vivisection Experiments on Animals

Lieut.-Col. FREMANTLE asked the Home Secretary whether he had received from his inspectors, under the Cruelty to Animals Acts, any reports during the last five years indicating either demonstrations before classes of students or painful experiments of a prolonged and agonising nature on dogs or other animals, and, if so, what action had been taken, and with what result —Capt HACKING replied No, Sir, no such experiments would be permitted and there is no evidence whatever that any have taken place In the case of experiments before students, they are all required to be performed under anæsthetics and the animal must be killed before it recovers consciousness As regards other experiments, all holders of licences who have certificates either dispensing with the requirement to use anæsthetics, or permitting the animals to recover from the preliminary operation under anæsthetics, are subject, in respect of every such experiment, to a special condition known as the pain condition The terms of this condition are printed in the report which is laid by my right hon friend each year before the House and are such as to render "experiments of a prolonged and agonising nature" impossible For many years past the inspectors under the Act have not found any instance of an infringement of this condition, if an inspector did observe any animal to be suffering considerable pain he would at once order it to be killed

Lieut -Col **FREMANTLE** Is my hon and gallant friend aware that specific statements, which he declares to be untrue are being publicly circulated by the National Canine Defence League, and are said to have resulted in a very large number of subscriptions? Can the hon and gallant gentleman do anything to prevent such misleading statements?

Capt **HACKING** · No, Sir, I know that many things are said by many organisations that are not true (loud cheers) and I hope that my answer will get as wide a circulation

Mr **BROMLEY** Can the Under Secretary for Home Affairs say whether some of the inspectors who are put to watch these proceedings have not themselves been vivisectors and are, therefore, in sympathy with them?

Capt **HACKING** No, Sir, that is a very unfair thing to say (cheers) The inspectors carry out their duties very creditably to themselves, to this House, and to the State

Mr **BROMLEY** asked if there had not been such inspectors?

The **SPEAKER** The hon Member ought not to make such suggestions

INFECTIOUS DISEASES IN ENGLAND AND WALES DURING THE WEEK ENDED FEB 26TH, 1927

Notifications —The following cases of infectious disease were notified during the week Small-pox, 438 (last week 346), scarlet fever, 1238, diphtheria, 1039, enteric fever, 35, pneumonia, 3828 (last week 3523), puerperal fever, 41, puerperal pyrexia, 120; cerebro-spinal fever, 16, acute poliomyelitis, 10, acute polio-encephalitis, 1; encephalitis lethargica, 38, dysentery, 11, and ophthalmia neonatorum, 141 No case of cholera, plague or typhus fever was notified during the week

No further cases of small-pox were reported from Cheshire, Lancashire, Lincolnshire, or Glamorganshire Otherwise the disease was limited to the same counties as last week—namely, Derbyshire, 13, Durham, 216, Northumberland, 26, Nottinghamshire, 3, Yorkshire, 145, and Monmouthshire, 35

The Welsh outbreak, which this last figure records, was described in THE LANCET last week, p 506 We are informed that it has now assumed formidable dimensions, roughly 200 cases having been reported since the first case was discovered on Feb 18th While the greatest proportion of the cases are in the Eastern valleys of Monmouthshire, which includes the towns of Abersychan and Blaenavon, cases have been detected over a wide area, including Argoed in the Sirhowy Valley and Aberbargoed in the Rhymney Valley which divides Monmouthshire from Glamorgan A case has also occurred, apparently by casual infection, at Aberdare which is in the middle of the mining valleys of Glamorgan Three cases of small-pox in Newport have been definitely confirmed Chicken-pox has been made notifiable by several authorities in South Wales, and the Welsh Board of Health are urging all authorities to adopt this precaution. The Cardiff City Council are speeding up the building of their new small-pox hospital, and a proposal to use the disused prison at Usk for the isolation of cases of small-pox is causing a certain amount of controversy in Monmouthshire

Deaths —In the aggregate of great towns, including London, there were no deaths from small-pox 4 (1) from enteric fever, 59 (1) from measles, 8 (1) from scarlet fever, 137 (26) from whooping-cough, 41 (11) from diphtheria, 31 (3) from diarrhœa and enteritis under two years, and 1023 (81) from influenza The figures in parenthesis are those for London itself The influenzal deaths for the last seven weeks have thus been 326, 470, 725, 818, 759, 990, and 1023, whilst 898 is the number notified for the week ending March 5th, the figure for London being 69

THE TRAINING OF NURSES FOR THE TROPICS.

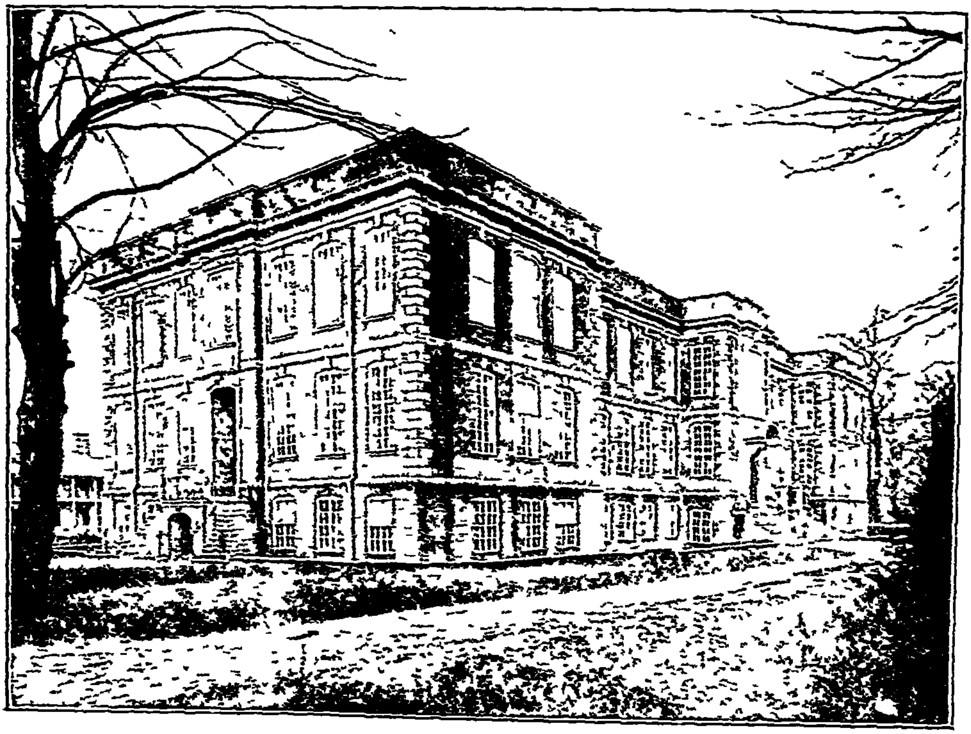
AT a lecture at the College of Nursing on March 8th Dr Philip Manson-Bahr said that a nurse equipped with elementary knowledge of the causation and prevention of tropical disease was an indispensable adjunct to efficient medical work in the tropics Tropical nursing was distinct from ordinary nursing and henceforward would have to be a distinct branch of the profession Nurses in the tropics were often isolated and separated for days at a time, and had to undertake responsibilities such as came to few nurses in this country She must know, inter alia, how to guard against insect-borne and water-borne disease, how to do invalid cookery, how to keep water cool, how to manage native servants, how to use quinine, or, if necessary, inject it, and how to prepare saline solutions, and other necessary drugs, should occasion arise she might be expected to help administer chloroform or do even more dramatic things Microscopic examination of blood and excreta had a far wider range of utility in the diagnosis and treatment of tropical diseases than in other branches of medicine and the tropical nurse would find life more interesting if she had an elementary knowledge of how these things were done At the Hospital for Tropical Diseases, under the ægis of the Seamen's Hospital Society, a course of instruction was given in the elements of tropical nursing The subjects of the course included personal hygiene in the tropics, clothing, exercise, food, alcohol baths, cooking, preservation of food, utilisation of tropical fruits and food, substitutes for milk, avoidance of prickly heat, protection from insect bites and a whole host of other subjects The general lectures dealt with the principal tropical diseases At the end of the course, the nurses were examined in these subjects and a certificate of proficiency was awarded by the Seamen's Hospital Society Staff nurses undertaking nursing abroad could now be taken on the staff of the Hospital for Tropical Diseases for six months and in doing so were free to attend the course of lectures and pass the examination The course was open also for nurses outside the hospital.

Referring to a leading article on Qualifying Examinations for Nurses published in THE LANCET, (March 5th, p 499) Dr Manson-Bahr said that a very high standard of technical knowledge, not always, it might be said, possessed even by medical men, was required by the General Nursing Council A detailed knowledge of anatomy and physiology was not expected of nurses for life in the tropics, nor were they asked to imbibe details of the life-history of disease-bearing parasites which were demanded of doctors qualifying for the higher examinations It was intended however, that they should know the importance of these parasites and the means by which they were spread The knowledge was of a practical nature

THE LATE DR LUMSDEN BELL —Dr James Lumsden Bell, probably the oldest medical practitioner in the East Riding, died at his home at Driffield on March 1st aged 88 years Dr Bell had lived in the town for 60 years He went first to Driffield as a tutor, and after studying medicine in Edinburgh, where he graduated M B and C M in 1880, returned to Driffield and took over a large practice He leaves a widow, two sons, and a daughter.

GIFTS TO THE LONDON HOSPITAL —Mr. Bernhard Baron who recently gave £10,000 to the London Hospital towards the cost of building a new pathological department, has now given a further sum of £25,000 to endow it. It has been found that the new department will cost more than was expected, the lowest estimate being £15,000, and the Rockefeller Foundation has offered the additional £5000 without conditions The Governors have received another generous gift—the freehold site on which the greater part of the hospital stands, from Mr L Abrahams Mr Abrahams bought the site from the City of London for £526 12s

SIR WILLIAM DUNN SCHOOL OF PATHOLOGY, OXFORD.



This new Institute will be opened to-day, Friday, March 11th, by Lord Cave, Lord Chancellor of England and Chancellor of the University of Oxford

(From a photograph by James Soame, 105, St Aldates, Oxford)

A NOTE ON THE ACTION OF A LEAD-SELENIUM COLLOID ON CANCER *

BY A T. TODD, M B EDIN , M.R C.P LOND ,
HON ASSISTANT PHYSICIAN, BRISTOL ROYAL INFIRMARY,
DEMONSTRATOR OF PATHOLOGY, BRISTOL UNIVERSITY

THE article published by Prof Blair Bell on the action of colloidal lead on cancer (THE LANCET, 1925, ii, 793) suggested independent research. It was considered that the addition of selenium might increase the regressive action of lead and that the analgesic properties of this element might lessen the pain of cancer and diminish the pain of lead intoxication.

A lead-selenium colloid was prepared and its toxicity and dosage worked out on animals Then it was used in the treatment of advanced, completely inoperable carcinomas and sarcomas It was not expected that these cases could be cured ; it was hoped that the compound would cause regression and ease pain A small group of diverse cases was treated, for one observer could not hope to follow results of a new remedy except on a small group The results appear to confirm the working hypothesis, for regression has occurred in about 50 per cent of the cases The analgesic action was striking in the one case in which pain was marked ; the absence of colic of any severity, even in cases showing severe blood changes, also encourages the hope that the analgesic action is of value

The regressive action of lead on cancer was postulated from the resemblance of cancer to chorion (Blair Bell) The more malignant the neoplasm the greater is the resemblance to chorion and the greater should be the hope of causing regression The preparation under discussion has marked abortive properties on animals, and with suitable dosage this action is the only obvious one The series is too small for a definite decision, but the preparation has given better results in the more rapidly growing neoplasms

The action on neoplasms having been proved, it is suggested the physician and surgeon can combine in reducing the mortality of cancer by (1) injection after complete operative removal, to kill any possible remaining cell ; (2) reduction of the number of inoperable cases—some of these are due to recent rapid growth from a slowly growing core ; the rapid growth should be vulnerable, the core may be removed; (3) the destruction of the remainder after the mass has been removed by the knife

Brief Summary of the Cases Treated.

(1) Squamous carcinoma of œsophagus Visible carcinoma disappeared, but a recurrence appeared in another place shortly afterwards

(2) Large ulcerated squamous carcinoma of cervix. The growth has disappeared and the cervix appears healthy. No symptoms three months later

(3) Sarcoma of mediastinum Transient improvement after each treatment, considerable relief of pain Sarcoma found to be much necrosed post mortem.

(4) Large squamous carcinoma of tongue ; rapid growth slowed and some relief of pain. Growth persists

(5) Carcinoma uteri, gave up the treatment at an early stage

(6) Squamous carcinoma tongue, large growth with extensive glandular involvement. Large ulcer became smaller, no other effect

(7) Carcinoma of cervix, compressing ureters and extending down vagina. Mass replaced by dense fibrous tissue, no obvious carcinoma. Condition good, but for vesicovaginal fistula

(8) Large fungating spheroidal cell carcinoma breast, firmly fixed to ribs Mass shrank considerably, became small and freely movable Excision of breast. Small scirrhus found

(9) Squamous carcinoma lip Growth appears to be practically stationary No other result.

(10) Papillary ovarian carcinoma with many large metastases all over the peritoneum. *Intestinal* obstruction occurred , at operation only one small nodule of carcinoma remained visible

(11) Carcinoma of tonsil large submaxillary glands. Growth perhaps less and glands softer.

(12) Recurrence of carcinoma of cervix after Wertheim Treatment has just started Mass is much smaller and requires searching for to be found

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* An abstract of a lecture on the preliminary results of this treatment given to the Bristol Medico-Chirurgical Society on March 9th, 1927

Medical News.

DANGEROUS DRUGS REGULATIONS, 1926 —The Home Secretary has given notice that, in pursuance of the Dangerous Drugs Regulations, 1926, he has appointed two Medical Tribunals—one for England and Wales, and one for Scotland—to which, as occasion arises, may be referred for examination and consideration, any case in which there is, in his opinion, reason to think that a medical practitioner may be supplying, administering or prescribing any of the drugs to which the Dangerous Drugs Regulations apply, either to or for himself or to or for other persons, otherwise than as required for purposes of medical treatment The appointment of these Tribunals was recommended by the *Departmental Committee on Morphine and Heroin Addiction*, presided over by Sir Humphry Rolleston, which reported in January, 1926 (see paras 65 to 75 of the Report) The Tribunals are constituted as follows —*England and Wales* Sir Humphry Rolleston, Bart (chairman), nominated by the General Medical Council, Sir William Hale-White, nominated by the Royal College of Physicians of London, and Dr John Wardle Bone, nominated by the British Medical Association, with Mr E W Hansell, Recorder of Maidstone, as legal assessor *Scotland* . Sir Robert Philip (chairman), nominated by the Royal College of Physicians of Edinburgh, Dr Ashley Watson Mackintosh, nominated by the General Medical Council, and Prof Thomas Kirkpatrick Monro, nominated by the British Medical Association; with Mr John Cowan, K C, as legal assessor Substitute members have also been appointed for each Tribunal to act in the event of the original members being unable to do so

ST BARTHOLOMEW'S HOSPITAL · THE SURGICAL WARDS —A luncheon was given at the Mansion House last week by the Lord Mayor, *Sir Rowland Blades*, to further an appeal for £200,000 on behalf of St. Bartholomew's Hospital The ward blocks, said Lord Stanmore, the treasurer, are more than 200 years old and need "most drastic reconstruction. Some of the operation theatres were erected as lean-to's more than 20 years ago, they are not connected with the wards, and surgical cases have to be taken across the square in all weathers" It is therefore proposed to put up a five-storey building to contain ten new surgical wards of 25 beds each, which would be connected with an operation theatre, and the usual accessories on each floor In the basement there would be an electro-therapeutic department, and on the roof new laboratories Sir Berkeley Moynihan said that on a recent visit to the hospital, he had "found some things that were almost a disgrace—the operation departments were not up to the standard of a first-class hospital in the provinces"

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION —Mr Zachary Cope will lecture for the Fellowship on Common Mistakes in the Diagnosis and Treatment of Acute Abscess, on Thursday, March 17th, at 5 P.M., at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square On Wednesday, March 16th, at 4 P M, Mr R C Davenport will give a special demonstration at the Central London Ophthalmic Hospital, Judd-street, and on Friday, March 18th, Mr Aleck Bourne will give a special demonstration in gynæcology at the Samaritan Hospital, Marylebone-road The lecture and demonstrations are free to members of the medical profession From March 14th to 25th the Chelsea Hospital for Women will hold a special course in gynæcology, occupying either the mornings or afternoons only and consisting of lectures, demonstrations, and operations (fee £5 5*s*) The Royal National Orthopædic Hospital will hold a two weeks' course from March 21st There will be morning and afternoon sessions, including operations, lecture demonstrations and instruction in the out-patient department, and a special visit will be made to the Brockley Hill County Hospital on Saturday, April 2nd (fee £2 2*s*) Also beginning on March 21st the London Temperance Hospital will give a two-week's course primarily for the benefit of the general practitioner Instruction will be given from 4 30 to 6 P M (fee £1 1*s*) The Queen's Hospital for Children starts a course on March 28th, lasting for two weeks A full all-day programme has been arranged and a special feature is made of showing cases, rather than of lectures, lunch and tea are provided (fee £3 3*s*) From March 28th, for two weeks, the Royal Eye Hospital will give a series of demonstrations during the afternoons on the diagnosis and treatment of the eye (fee £1 1*s*) The Fellowship arranges for practical courses in anæsthetics and obstetrics, and also makes arrangements for clinical assistantships in gynæcology Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

UNIVERSITY OF LONDON Election to the Senate —At the election on May 10th of a medical member of Convocation to the Senate, Mr W McAdam Eccles, surgeon to St Bartholomew's Hospital, is a candidate His experience as a councillor is already great —Mr Walter George Spencer, consulting surgeon to Westminster Hospital and a member of the Council of the University of London Graduates' Association, has been chosen by that body as their candidate for the vacancy Mr Spencer's public services to the profession are well known, and the fact that he has retired from his hospital appointments will make it possible for him to give time to the duties of a Senator

LISTER CENTENARY CELEBRATIONS —Owing to the limited capacity of the House of the Royal Society of Medicine, those wishing to attend the social evening on April 4th, when Sir StClair Thomson will give an address entitled "The Centenary of Lister Recollections by one of his House Surgeons," should apply to the Secretary of the Society for admission cards, whether they are Fellows, Associates, or Members of the Society or not

INTERNATIONAL LISTS OF THE CAUSES OF DEATH —At the request of the Health Organisation of the League of Nations, British, American, French, Italian, and Danish experts will meet on March 14th to study the proposals of a number of Governments, and of an American Committee on the possibility of revising the international list of the causes of deaths These experts will also consider unification of the existing methods of registering infant mortality

RADCLIFFE INFIRMARY —The Governors of the Radcliffe Infirmary at Oxford are considering the urgent need of extensions The hospital requires another surgical ward for women, a women's accident ward, a second operating theatre, and some isolation beds These enlargements would entail the provision of a first-class nurses' home, the accommodation for the nursing and domestic staffs are insufficient and unsatisfactory It is hoped to make an early start with these extensions

BRITISH MEDICAL ASSOCIATION · SCHOLARSHIPS AND GRANTS IN AID OF SCIENTIFIC RESEARCH.—The Council of the B M.A will receive applications as follows ·—

Research Scholarships, a scholarship, known as the Ernest Hart Memorial Scholarship, of the annual value of not more than £200, and three other research scholarships each of the annual value of not more than £150, for research in any subject, including State Medicine, relating to the causation, prevention, or treatment of disease Each scholarship is tenable for one year, commencing on Oct 1st, 1927 A scholar may be reappointed for not more than two additional terms, and may hold a junior appointment at a university, medical school or hospital, provided the duties do not interfere with his work as a scholar

Grants —The Council will also receive applications for grants for the assistance of research in the same directions, preference being given to applicants who propose as subjects for investigation problems directly related to practical medicine

The conditions of the awards of the scholarships and grants will be supplied on application to the Medical Secretary of the Association, Tavistock-square, London, W C 1, and applications for the year 1927-28 must be made not later than Saturday, June 4th, 1927, on the prescribed form, with the names of three references, the form will be supplied by the Medical Secretary

SCOTTISH CRIPPLED CHILDREN —After a year's inquiry an Edinburgh Committee has just reported that there is a "clamant need" for a central hospital for the treatment of crippled children in South-Eastern Scotland, and a public meeting in the capital has accepted their recommendations It is proposed that the institution should be on the outskirts of Edinburgh, that major clinics should be formed at important centres of population, and with minor clinics linked to them, that there should be coöperation between the new special hospital and the existing ones, and that children should be admitted up to 16 The Scottish Board of Health will give grants up to that age There would be a minimum of 75 beds, which with site and equipment, would cost £1000 per bed

RESIGNATION OF A HOSPITAL STAFF —The Committee of Management of the Dorset County Hospital at Dorchester, proposed to alter one of the rules to read as follows "Patients may retain the services of their own medical attendants, but in a case requiring an operation they shall obtain the coöperation of a member of the medical staff at such operation" The whole of the honorary medical and surgical staff of the hospital immediately resigned on the ground that all matters of professional concern should be referred to them for their opinion before any action is taken A few days later the rule was withdrawn for further consideration, and the staff cancelled their resignations

Dr W Essex Wynter will deliver an Emeritus lecture in the Large Lecture Theatre of Middlesex Hospital Medical School, on Friday, March 18th, at 3 P M The subject will be The Study of Local Diseases and Remedies

British Hospitals Association—The annual meeting and conference of this Association has been fixed to take place at Norwich on Thursday and Friday, June 23rd and 24th

Irish Medical Schools and Graduates' Association—The annual dinner of this Association will be held on Thursday, March 17th, at 7 30 P M, Sir W I de C Wheeler, the president, in the chair Vice-Admiral Sir Frederick Field will be the principal guest

Middlesex Hospital—Prince Arthur of Connaught, chairman of the hospital, has received £1000 from Lieut-Colonel Beddington in response to Mr J A. Berner's offer to give that sum towards the new block of paying wards for the hospital, if nine others would do the same

King Edward's Hospital Fund for London—Hospitals situated within 11 miles of St Paul's which may wish to participate in grants for 1927 made by the Fund must apply before March 31st to the hon secretaries at 7, Walbrook, E C 4 Applications will also be considered from convalescent homes which are within the above area or which, although situated outside it, take a large proportion of patients from London

South Devon and East Cornwall Hospital—The pressure upon this Plymouth hospital, which serves a district extending from Clovelly on the north to Land's End on the south, has become so severe, that it is proposed to extend it by providing 70 additional beds, a number of paying beds, and a new out-patient department It will then be the largest voluntary hospital in the West of England

The New Southend Hospital—So many agencies are at work raising money for the erection of the proposed new General Hospital at Southend-on-Sea, that the committee of the new hospital fund is requiring that the organisers of all efforts in aid shall obtain official approval of their plans, and that all printed matter shall bear the official badge of the fund, together with an indication of the proportion of the receipts which are to go to the hospital

Vaccinations at Southport—The Chairman of the Health Committee stated at a meeting of the Town Council that the first case of small-pox appeared on Jan 8th, and that altogether there had been 51 cases, and only four of them had been vaccinated, and those were vaccinated in childhood The last case recorded was on Feb 18th, and only 14 cases remained in the hospital Over 15,000 people have been vaccinated since the outbreak

Medical Society of London—The 154th anniversary dinner of the Medical Society of London was held at the Grand Hotel, London, on Monday, March 7th, the President of the Society, Sir Humphry Rolleston, in the chair The toast of the Society was proposed briefly by Sir John Rose Bradford, who laid stress on its seniority and on the individuality which it had always preserved In a witty reply the Chairman pointed to the strong surgical bias which had recently marked the official lectures, and announced that the sessions this year would be closed by an address from the great American surgeon, Harvey Cushing The vitality of the Society, he considered, made it a young though an old institution, and in proof of his words he referred to the increasing membership and the good attendance at the meetings The toast of the Visitors was proposed by Dr Walter Carr, who said that three lines were open to a speaker in his position—that of general reflection, that of categorising all the guests present and mentioning their merits—an invidious and lengthy process, and that of referring to one guest in the more spacious manner Lt.-Col J R Lord, President of the Royal Medico-Psychological Association, had been selected as the victim Colonel Lord, in his reply, suggested that such was the growing influence of psychology in medicine that his special branch, so far from being the Cinderella, might be held as the superior of many sections of their science, and he pointed out that the famous Quaker physician, who founded the Medical Society of London—Lettsom—was a great psychiatrist, for, realising 150 years ago the effect upon mental development which the system of slavery must entail, he had been led to emancipate all the slaves on his family property in the West Indies, although at the time that he did so he possessed no other private pecuniary resources The health of the President was proposed by Mr J E H Roberts, who ran rapidly through Sir Humphry Rolleston's varied posts and performances, mentioning at the end of the imposing list the fact that he had played for his hospital in a winning cup team Suitable acknowledgments of the toast by the secretaries of the Society, Dr F G Chandler and Mr V Z Cope, closed a pleasant evening

University of Liverpool—Lord Derby, Chancellor of the University, has agreed to add during the next seven years an annual donation of £1000 to the £500 per annum he is already contributing to the University funds

University of Aberdeen.—On Wednesday, March 23rd, the University of Aberdeen will confer the honorary degree of LL D upon Sir William Milligan of Manchester, and Sir Frederick Gowland Hopkins, Professor of Biochemistry at Cambridge

Royal Aeronautical Society—A lecture, entitled Man and the Machine will be delivered by Group Capt M Flack, at 6 30 P M, on Thursday, March 10th, at the Royal Society of Arts, 18, John-street, Adelphi, London, W C

Biochemical Society—The annual general meeting will be held on Friday, March 18th, at 4 30 P M, in the Department of Physiology and Biochemistry, University College, Gower-street, W C

Metropolitan Asylums Board—A three months course on clinical practice and hospital administration, for the Diploma of Public Health, will be given at the North-Eastern Hospital, St Ann's-road, Tottenham, N 15, by Dr F H Thomson, the medical superintendent, on Mondays and Wednesdays at 4 45 P M and alternate Saturdays at 11 A M, beginning on Monday, April 11th Application should be made to the Clerk to the Board, at Victoria Embankment, London, E C 4

Chelsea Clinical Society—The next meeting of this Society will be held at The Rembrandt Hotel, Thurloe Place, London, S W 7, on Tuesday, March 15th, at 8 30 P M preceded by dinner at 7 30 P M. Dr Russell Andrews, Dr F J McCann, and Sir Bruce Bruce-Porter will take part in a discussion on Professional Regrets

International Society of Medical Hydrology
On March 3rd the President (Dr Gustave Monod) and Madame Monod received members and guests at a conversazione in the rooms of the Medical Society of London Those present were drawn from ten different countries and included the Minister for Latvia and representatives of the French and Italian Embassies and of the Czech Legation A lecture was read by Mr Yates for Mr Lewis Abbott of Hastings on the History of Silica, which was illustrated by specimens shown on the epidiascope An address was given by Prof Desgrez who brought greetings to the Society from the Institute of Hydrology of the Faculty of Medicine of Paris and gave a short description of the teaching of hydrology in France and the work of research and standardisation carried on by the Institute After acknowledging Prof Desgrez's tribute to the Society the President called upon Mr W A Appleton (Secretary of the General Federation of Trade Unions) to make a statement on the attitude of the Unions towards rheumatism in industry Mr Appleton is a member of the Society's British committee on rheumatism which is seeking to establish a clinic in London in pursuance of the scheme suggested by the Ministry of Health The evening ended with a violin recital by Madame J van Breemen

Medical Diary.

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W

MONDAY, March 14th—5 P M, WAR Paper Surg-Comm C H Dawe, R N Diet and Disease in the Navy

TUESDAY—5 30 P M, GENERAL MEETING OF FELLOWS 8 30 P M PATHOLOGY Annual General Meeting Papers Prof H T Deelman The Part Played by Injury and Repair in the Development of Cancer, and Some Remarks on the Growing of Experimental Cancers Dr Oliver Heath The Defence Process in the Body in Typhoid Fever Prof McIntosh Some Experiments on Immunity with the Rous Sarcoma

WEDNESDAY—6 P M COMPARATIVE MEDICINE Paper Prof Mollgaard (of Copenhagen) Chemotherapy with Special Reference to Heavy Metals 5 P M, HISTORY OF MEDICINE Papers Sir D'Arcy Power The Writings of the Elizabethan Surgeons as Literature Prof Morpurgo (Padua) English Physicians at the University of Padua in the Collegio Veneto Artista (1617-1771) (communicated by Dr Singer) Dr C Singer An Example of the Egyptian God Bes Exhibiting Symptoms of Spina Bifida (postponed from Feb 16th) Dr Herbert Spencer Wolveridge's Speculum Matricis (1671) with notes on two MS copies in the Society's library

THURSDAY—5 P M, DERMATOLOGY (Cases and Demonstration at 4 P M) Demonstration Dr A C Roxburgh The Detection of Ringworm Hairs on the Scalp by

Ultra-violet Light Cases will be shown Paper Prof W E Dixon (Cambridge) Thallium

Friday —8 P M, Obstetrics and Gynæcology Specimens Mr L C Rivett Carcinoma of the Cervix complicating Pregnancy Mr Gordon Luker Fibromyoma of Uterus, Rupture of the Capsule with Protrusion of Part of the Tumour with Secondary Necrosis Paper Mr Aleck Bourne and Dr J H Burn The Dosage and Action of Pituitary Extract and of the Ergot Alkaloids on the Uterus in Labour, with a Note on the Action of Adrenalin 8 30 P M Electro Therapeutics Discussion of Cholecystography *Opener* Dr N S Finzi

MEDICAL SOCIETY OF LONDON, 11, Chandos street, Cavendish-square, W

Monday, March 14th —8 30 P M, Demonstration on Lipiodol Injections by Dr Jacques Forestier

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos street, Cavendish square, W

Thursday, March 17th —8 15 P M, A Laboratory Meeting will be held at the Royal Army Medical College The following, amongst others, will give Demonstrations Dr S Adler, Dr A Balfour, Maj J S K Boyd, Maj C R Chadwick, and Mr C MacHattie (shown by Dr Wenyon), Mr C A Hoare, Dr Saiki, Dr E C Smith, Dr H H Scott, Dr A C Stevenson, Dr C M Wenyon, Prof Warrington Yorke, and Dr A R D Adams

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S W

Tuesday, March 15th —5 P M, Prof F R Fraser Cardiac Dyspnœa (Second Goulstonian Lecture)

Thursday —5 P M, Prof F R Fraser (Last Goulstonian Lecture)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W

Monday, March 14th, to Saturday, March 19th —Fellowship of Medicine Special lecture at the Medical Society, 11, Chandos street, Cavendish square, W, at 5 P M, on Thurs Mr Zachary Cope Common Mistakes in the Diagnosis and Treatment of Acute Abscess Open to all members of the medical profession without fee —Samaritan Hospital, Marylebone road, N W Special demonstration in Gynæcology on Fri, at 2 P M, by Mr Bourne Open to all members of the medical profession —Central London Ophthalmic Hospital, Judd-street W C Wed, 4 P M Special demonstration in Ophthalmology by Mr Davenport Free to members of the medical profession Chelsea Hospital for Women, Arthur street, S W Special course in Gynæcology

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W

Monday, March 14th —10 A M, Mr MacDonald Genito Urinary Operations 2 P M, Mr Addison Surgical Wards 2 P M, Dr Ironside Medical Out Patients

Tuesday —10 A M, Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M, Mr Sinclair Surgical Out-Patients

Wednesday —10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Outpatients Mr Donald Armour Surgical Wards

Thursday —10 A M, Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 4 P M, Mr Donald Armour Head Injuries

Friday —11 A.M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out patients

Saturday —9 30 A M, Dr Burnford Bacterial Therapy 10 A M, Mr Vlasto Operations on Throat, Nose, and Ear

Daily —10 A M to 5 P M, Operations, Medical, Surgical, Special, Out patient Departments (Saturdays, 10 A M to 1 P M)

NORTH-EAST LONDON POST GRADUATE COLLEGE, *Prince of Wales's General Hospital, Tottenham, N*

Monday, March 14th —10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M, Medical, Surgical and Gynæcological Clinics Operations

Tuesday—2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations

Wednesday —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations

Thursday —11 30 A M, Dental Clinic 2 30 P M to 5 P M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations

Friday —10 30 A.M, Throat, Nose, and Ear Clinics 2 30 P M. to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations

On Wednesday, March 16th, and Friday, March 18th, at 2 30 P M, there will be special demonstrations of Dermatological and Surgical Cases by Dr W Jenkins Oliver and Mr E Gillespie respectively

Also on Friday, March 18th, at 4 30 P M, Dr L R Yealland will demonstrate on Cases of Nerve Diseases

UNIVERSITY COLLEGE HOSPITAL, Gower street, W C

Friday, March 18th —4 15 P M, Dr Charles Singer The History of Yellow Fever

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE

Tuesday, March 15th —3 15 P M, Dr H E Shaw Demonstration of Pathological Specimens

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W C

Thursday, March 17th —4 P M, Mr Barrington Ward *Acute Appendicitis*

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W C

Friday, March 18th —4 P M, Mr Harold Kisch Acute Mastoiditis Its Diagnosis and Treatment

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY

Wednesday, March 16th —5 30 P M, Mr A T Pitts Management of Orthodontic Cases

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49 Leicester square, W C

Tuesday, March 15th —5 P M, Dr Wilfred Fox Nævi

Thursday —5 P M, Dr K Bailey Pathology Demonstration

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester

Wednesday, March 16th —4 15 P M, Mr A C Magian The Cure of Sterility in Women

ST MARY'S HOSPITALS, MANCHESTER POST-GRADUATE LECTURE

Friday, March 18th —4 30 P M (at the Whitworth street West Branch), Dr W Fletcher Shaw Forceps

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURE

Tuesday, March 15th —4 15 P M, Mr J P Buckley Meckel's Diverticulum

Friday —4 15 P M, Dr F E Tylecote Demonstration of Medical Cases

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS

Friday, March 18th —3 30 P M (at the Royal Hospital), *Mr Garrick Wilson Surgical Cases*

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

Monday, March 14th —6 P M (at the Medical Society of London, 11, Chandos street, W), Prof B Collingwood: Excretory Systems

Appointments.

Certifying Surgeons under the Factory and Workshop Acts.

Clayton, C J W, L R C P Lond, M R C S (St Columb, Cornwall), Miller, T, M B Ch B Glasg (Dumbarton), Lloyd, L R (Stewarton, Ayr)

Vacancies.

For further information refer to the advertisement columns

Belgrave Hospital for Children, 1, Clapham road, S W —H S. and Asst H P Each at rate of £100

Bristol, Cossham Memorial Hospital, Kingswood —*Res* M O. £150

Cambridge, Addenbrooke's Hospital —H S and H P Each at rate of £130

Central London Ophthalmic Hospital, Judd-street, St Pancras, W C —Senior and Junior H S At rate of £100 and £50 respectively

Charing Cross Hospital, W C —Asst Obstet P

Charing Cross Hospital, Institute of Pathology —Pathologist £500

Chester Royal Infirmary.—Hon Asst Anæsthetist

City of London Hospital, Victoria Park, E —Radiographer

Delhi, India, Lady Hardinge Medical College —Professor of Physiology Rs 750 monthly

Dorchester, Dorset County Hospital Second Hon P

Dreadnought Hospital, Greenwich.—H P and H S 's Each at rate of £110

Durham County Hospital —Jun H S At rate of £120

Elizabeth Garrett Anderson Hospital, Euston-road —Phys in charge of Children's Dept

Essex, Administrative County of —Asst County M O H £700.

Glasgow University —Muirhead Chair of Obstetrics and Gynæcology

Halifax Royal Infirmary —Third H S At rate of £100

Hereford County and City Mental Hospital —Second Asst M O £350

Hospital for Consumption and Diseases of Chest, Brompton, S W —Asst Surg to Throat, Nose, and Ear Dept

Hospital for Epilepsy and Paralysis, Maida Vale, W —Hon M O for X Ray, &c

Hospital of St John and St Elizabeth, 40, Grove End road, N W —Res H S At rate of £75 Also Asst P

Hospital for Sick Children, Great Ormond street, W C —H S. Also H P and Asst Cas O Each at rate of £56

Hindley Urban District Council —M O H, &c £850

Ipswich, East Suffolk and Ipswich Hospital —Two H S 's and One H P Each at rate of £100

King's Lynn, West Norfolk Hospital —Jun H S £100

Leicester Royal Infirmary —Two Surgical Dressers *10s 6d* weekly

Liverpool, Royal Southern Hospital —Hon S, Hon. Dermatologist, and Hon Ophth S

London, Female Lock Hospital, 283, Harrow road, W —Surg. Reg £100

London Lock Hospital, 91, Dean street, W.—Surg Reg £100

Malayan Medical Service —M O 's $500 per mensem

Manchester, Ancoats Hospital —H S At rate of £100

Manchester Ear Hospital, Grosvenor square, All Saints —Non-Res H S At rate of £150

Manchester, Babies' Hospital, Burnage Lane, Levenshulme —Res M O At rate of £125

Manchester, St Mary's Hospitals —Four H S 's Each at rate of £50

Manchester, Salford Royal Hospital —Two H S 's Each at rate of £125

Manchester, Victoria Memorial Jewish Hospital —Hon S Also Res M O £250

Metropolitan Asylums Board, Infectious Hospitals Service —Asst M O £500

Miller General Hospital for South-East London, Greenwich road S E —H P £125

National Hospital for Diseases of the Heart, Westmoreland-street, W —Res M O Also Out patient M O At rate of £150 and £125 respectively

Northampton County Borough —Asst M O H £600

Plymouth, Homœopathic and General Hospital —H S At rate of £100

Preston and County of Lancaster Royal Infirmary —H S £150

Prince of Wales's General Hospital, Tottenham, N —Two H S 's and H P At rate of £120 Also Jun H S and Jun H P At rate of £90

Queen's Hospital for Children, Hackney road, Bethnal Green, E —H P At rate of £100

Royal Free Hospital, Gray's Inn road, W C (Children's Dept)—First Asst. for Infant Welfare &c

Royal National Orthopædic Hospital, 234, Great Portland-street, W —H S At rate of £150

Royal Northern Hospital, Holloway, N —H P Also Obstet H S Each at rate of £70

Royal Waterloo Hospital for Children and Women, Waterloo road, S E —Hon Surg Reg and Hon Orthopædic Surg

Samaritan Free Hospital for Women, Marylebone road, N W —H S At rate of £100 Also Hon Surg to Out patients

Sheffield, Winter-street, Hospital for Tuberculosis —Res M O £350

Shoreditch, Metropolitan Borough Municipal Dental Hospital — 164, Kingsland road —Anæsthetist at rate of £1 14s per session

South London Hospital for Women, South Side, Clapham Common, S W —H P and three H S 's Each at rate of £50

Southampton County Borough, Isolation Hospital —Res M O £360

Surrey County Council —Asst M.O in Public Health Dept £600

West London Hospital, Hammersmith-road, W —Hon Med Reg £100

Westminster Hospital, Broad 'Sanctuary, Westminster, S W —Second Dental Surg

The Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Leiston Suffolk

Births, Marriages, and Deaths.

BIRTHS

DOUTHWAITE.—On Feb 27th, at 'Carlingford," Worthing Sussex, the wife of Dr A H Douthwaite, of a daughter

JACKSON —On Feb 27th at Knowle, Fareham, Hants, the wife of J L Jackson M B , *of a son*

NASH.—On Feb 28th, at Winn road, Southampton, the wife of Major E L F Nash, R A.M C , of a son

SMITH —On Feb 28th at Sherborne House, Gloucester, the wife of Dr E F Smith, of the Chestnuts, Stroud, Gloucestershire, of a daughter

TWORT —On March 1st at The Wilderness, Camberley the wife of Dr F W Twort The Brown Institution, of a daughter

MARRIAGES

CAHILL—BERESFORD —On March 1st, at the Church of St Thomas of Canterbury Woodford, Henry Bernard Martin Cahill L D S R.C S (Eng) to Doris Maud elder daughter of Walter A Beresford of St Mary s Croft, Wanstead, Essex

HARGREAVES—MERRYWEATHER.—On Feb 23rd, at Mandeville Jamaica, George McNeill Hargreaves M D , to Margaret daughter of the late Ernest Merryweather

DEATHS

DANCY —On Feb 28th at Duke's avenue Chiswick Horace Michael Dancy, M R C S , L R C P , late of Ramsgate, Kent, aged 74

GREENE.—On March 5th at Kingsnorth gardens Folkestone John Alan Campbell Greene, M R C S , L R C P , M C , late of Woodsley road, Leeds

PEGLER —On Feb 26th at Snayle's Tower Exeter Louis Hemmington Pegler, M D , M R C S , L.R C P , late of Harley street, London W

PRESTON —On March 1st at Wyndham House Ryde, I of W , Lionel Litchfield Preston M B B S aged 62

SCALES —On Feb 28th at Redcourt, Adams road, Cambridge, Francis Shillington Scales M D

N B — A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

CREMATION IN GREAT BRITAIN —A slow but steady increase of cremation in the whole of Great Britain is shown by comparison of figures for 1922 and 1926 the totals being 2009 and 2877 respectively

Notes, Comments, and Abstracts.

RHEUMATIC INFECTION OF CHILDHOOD.*

BY CAREY F COOMBS, M D , F R C P LOND ,

PHYSICIAN WITH CHARGE OF OUT-PATIENTS, BRISTOL GENERAL HOSPITAL

I

THE series of lectures to which this discourse belongs serves to remind us of the labours of a man who spent his life and strength in organising the fight against disease Of Sir Edwin Chadwick and his fellow-workers may we most truly say, " Other men laboured, and we have entered into their labours " From them we have inherited, not only comparative freedom from zymotic disease, but also the apparatus for combating that which remains I trust that I may be able to show you that in three respects at least the infection to which our attention is to be directed this afternoon must be fought with the weapons that Chadwick did so much to create housing control, care for the health of the elementary school-child, and coördination of the machinery already in being

Definition

The label " rheumatic " covers a rather wider area when it is used by the public than it does in the hands of the medical profession It is to the narrower sense that I shall limit it , I shall follow the definition of the rheumatic diseases assumed by the Ministry of Health in its recent Report,[1] with one important difference The inquiry on which that report was based was restricted to the insured population so that children were excluded This necessarily excluded from the inquiry a majority of patients suffering from what is best called " the rheumatic infection " It has been well said, I think by Dr F J Poynton, that this disease assumes its typical form in childhood attacking adults less often and in a form in which the articular aspects are atypically emphasised

The Manifestations of Infection

The fact is that the rheumatic fever of adults, fortunately less common than it was, offered so dramatic a picture of suffering that it quite threw into the shade the insidious yet far more dangerous cardiac lesions of childhood It is mainly to the London school of physicians that we owe our present and more accurate view, that which sets the cardiac lesions in the centre of the stage and treats the other manifestations as of less importance The cardiac inflammation is one of several manifestations of the activity of this infection, the four chief of which are carditis, polyarthritis, chorea, and subcutaneous nodes All these reactions are similar in their essentials if we allow for the local colour prescribed by the nature of the tissue infected

These changes are most easily studied in the heart, but reach their extreme expression in the subcutaneous node If we watch their evolution in one of the seams of connective tissue that traverse the cardiac muscle, we shall detect the first change in some small blood-vessel Its lining cells swell and multiply, it becomes the centre of a brisk inflammation, and after being sealed by clotting is more or less wholly destroyed The mobile defensive cells that are called from a distance seem to disappear from the picture leaving the inflammatory field in possession of cells, for the most part local in origin As these again recede, a characteristic picture is revealed a background of fibrin embedded in which lie large cells with many nuclei, and cells destined to become fibrous tissue. This, in turn gives way to a permanent but inconspicuous scar If the muscle cells of the heart wall be examined, it will be found that they have not escaped Changes similar in type to but less in degree than those of diphtheria can be seen The cardiac muscle has been attacked by a poison which entered through its own proper blood-vessels and spread thence to all parts If the dose of poison is concentrated enough it may kill outright More often the patient survives but with permanent disabilities, for an inflammatory reaction of a kind similar to that seen in the interstices of the heart muscle has been set up in the serous tissues that clothe that muscle and assist it in its work The valves that lie within the heart and are essential to its value as a pump are thickened and deformed, and at least fail to help, often actually hindering, the work that the heart has to do Often, also, the pericardial sac by which the heart is enveloped is partially or wholly ruined The two layers which should slip over each other so smoothly as to nullify the friction of the beating heart against its surroundings are welded together into a fibrous mass, and thus once more a permanent disability is laid on the heart

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* Lectures on the Causes and Prevention of Rheumatism, delivered under the Chadwick Trust The first lecture (of which this is the first half) was given on March 3rd 1927

[1] Ministry of Health Report No 23, 1924

Nor is this all The infection which has attacked the heart is seldom content with one of these raids Usually it comes again and again, so often in many cases that its inroads assume the character of a prolonged occupation It is true that as age advances these raids tend to become less frequent Yet the combination of permanent mechanical disability and recurrent drenchings with poison is very deadly Every year claims its victims, especially the first 10 or 15 years from the date of the primary infection There is, moreover, a steadily increasing degree of disablement, which ultimately becomes complete in those who escape death

The other manifestations are less deadly, but one of them, an inflammation of the brain and its coverings, is responsible in the aggregate for a great deal of interference with the education of the growing child It is exhibited in the form of chorea, or St. Vitus's dance, which may keep the child out of school for weeks or months, and recur from time to time Joint pains seldom afflict the rheumatic child severely, and their chief significance is to act as a warning of the probable coexistence of a cardiac inflammation.

Of the subcutaneous node I must say a word or two In the severest cases of rheumatic infection in childhood these nodes are to be found in the parts where but little fat intervenes between skin and bone, for example, over the elbows and knees They are not painful and seldom tender, and are likely to be overlooked unless they are deliberately searched for Their genesis is exactly the same as that of the inflammatory spots in the cardiac muscle that I have already described, although they are on a larger scale, a blood-vessel becomes inflamed and closed, and around it a mass of new cells is formed, which evolves into a small scar in the course of a few weeks Although these nodes are only seen in the severest cases of rheumatic infection, when they do occur they are more characteristic of that infection than any other of its manifestations, for there is no other infection that produces their like

Disablement and Recovery.

This, then, is the disease of which we are hearing so much—an inflammation of the heart which tends to become chronic and to inflict lasting disability on those who survive its earliest onslaughts From a study of statistics several facts emerge first, that if recovery takes place at all it must necessarily be in the early stage, second, that the disease claims a large proportion of its victims also in that earlier stage, third, that of those who, though uncured, survive that stage few reach the age of 50, finally, that those who do survive are seriously disabled

One thing is encouraging The results of a follow-up of over 600 cases which was carried out with the aid of a grant from the Medical Research Council, showed a surprising number of apparent recoveries even among children whose hearts had undoubtedly been damaged I feel sure that we shall get far better results when we have learnt to treat this disease as patiently and thoroughly as we treat, for instance, tuberculosis of bones and joints Our views on the treatment of chronic and persistent infection are moving in the direction first pointed by the open-air treatment of tuberculosis To the application of rest, carefully controlled and if necessary prolonged, under conditions affording a maximum of sunlight and fresh air and good food, has in recent years been added a tendency to alternate rest with occupation as a therapeutic agent, and these principles have found a wide application in the treatment of rheumatic heart disease in America In this country there is a growing belief in the country hospital-school for the treatment of crippling disease in childhood, and in the benefits to be derived from such institutions as these the cardiorheumatic child is destined to share

But here we are chiefly concerned with means for the prevention of rheumatic heart disease First, we must realise that the disease is already decreasing This is the experience of most general hospitals, and, moreover, an examination of the mortality records for Bristol for the years 1876–1913 showed quite clearly that there was a fall in the annual death-rate of this disease There are three other facts that emerged from this enquiry which will, I believe, interest you First, it was seen that though the death-rate from this disease was decreasing, it was decreasing less rapidly than the general death-rate did during the same period Second, the years which saw large semi-rural areas brought into the city and therefore into these records, were followed by an acceleration in the fall of the rheumatic heart disease death-rate The inference is that if a city's population is diluted by the addition of country districts, the percentage of that population attacked by rheumatic heart disease will be smaller Third, by a comparison of these mortality records with records of hospital cases in which the diagnosis had been checked by post-mortem examination, I came to the conclusion that Bristol, a city of a quarter of a million people on an average of the period of inquiry, lost between 70 and 80 lives per annum from this disease

Taking the population of Great Britain at forty million, we may deduce the annual loss from this disease as about 12,000 This would include deaths from such forms of valvular disease as are generally admitted to be rheumatic in origin—namely, mitral stenosis and aortic regurgitation in persons under 30 A rough estimate of the mass of disablement inflicted on our nation by this form of heart disease is to be found by allowing an average of five years' disablement to each case This brings the number of persons permanently disabled by it up to 60,000 in any given year

Predisposing Factors

Some of the conditions predisposing to this disease are so generally admitted, that it will be enough to state them Of my cases of rheumatic heart disease two-thirds arose between the ages of 5 and 15 The disease falls a little more often on girls than on boys, in somewhere about the proportion of three to two A hereditary predisposition appears to be traceable in about 50 per cent Probably it exists potentially even where it does not reveal itself actually The disease is relatively rare in tropical countries, falling with particular intensity on this country and Northern Europe Its incidence is heaviest in the winter months, as was seen in a curve plotted from the Bristol figures, using only those in which the disease appeared to have been acute and therefore of recent origin

These are causal circumstances over which we have no control Now we must turn to three or four factors which are of more practical importance because they might be susceptible of modification At the same time they must be received with a little caution, as we cannot claim that any one of them is established beyond controversy In the first place, I have already mentioned urbanisation, but let me at once disarm criticism by saying that we are at present trying to organise, in the West of England, an inquiry into the incidence of the disease in urban versus rural communities By this means we hope to secure valuable evidence, and the question may be decisively settled one way or the other Second, there is the poverty factor There are various views on this, but I am sure I am expressing the sense of the majority in laying stress on the contrast exemplified in my own experience, which shows that 50 per cent of the cases of heart disease admitted to hospital are rheumatic, as against only 25 per cent of those seen in private practice The evidence collected by Dr Vincent Coates and Dr R E Thomas[3] from their inquiry in Bath went to show that the incidence of the disease was heaviest in the better-class industrial suburbs, and apparently less among the very poor Be that as it may, it is quite certainly a rare disease among the well-to-do

This brings us to another point, that of housing My inquiries in Bristol gave no support to the view that certain houses were so heavily infected as to injure one inmate after another In only eleven houses had more than one death from rheumatic heart disease occurred, and in none of these had there been more than two deaths But another Bristol investigation, carried out recently by Dr R A Askins and Dr J Morrison, into the condition of the home of a number of elementary school children with rheumatic heart disease, showed, conclusively to my mind, that dampness in houses had something to do with the origins of rheumatic infection This inquiry was most carefully conducted Dr Morrison himself visited the houses and made a thorough inspection In Bath Dr Coates and Dr Thomas noted a coincidence between the distribution of the disease, and houses built on alluvial soil These facts, together with others collected by Dr Reginald Miller in Paddington and Dr A P Thomson in Birmingham, have persuaded me that there is a connexion between damp in houses and rheumatic infection, although my own research into mortality records had previously led me to think otherwise

(*To be concluded*)

AN ARGENTINE MEDICAL JOURNAL.

UNDER the name of *Cordoba Medica* Dr Antonio Novarro issues the first number of a periodical which is intended to give a monthly survey of the whole field of medicine whether in the Argentine or abroad It opens with articles on the syndrome of coronary occlusion, on the presternal muscles and on the plastic surgery of the nose The beginning is promising, if modest, and the journal should prove stimulating to medical work in Cordoba

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[3] THE LANCET, 1925, ii, 326

A NEW METHOD OF COMBATING OLD AGE

Prof E Steinach has published in the January number of the *Medical Journal and Record* details of a new minor operation which can be carried out in patients who have already been subjected to bilateral vasotomy The results of vaso-ligature are admittedly temporary and once the operation has been performed it is impossible again to have recourse to this method of stimulating the activity of the interstitial cells

The new operation may be described as "albugineatomy" Through a small opening in the scrotum the testicle is exposed, and with the help of an assistant kept in its position After selecting a place in the tunica albuginea with very few blood-vessels, an incision of from 2–3 cm. is made The edges of the incision separate, and spontaneously a small piece of testicular substance protrudes This piece, about the size of the kernel of a date or a small olive, is smoothly cut off with scissors, and after ligaturing any vessel that bleeds, the albuginea is sutured together with a fine needle and catgut Finally the tunica of the testicle and the scrotal wound is closed

Steinach explains the rationale of the operation as follows The tightly stretched albuginea keeps the whole convoluted mass of the seminiferous tubules under pressure. Like wires in a bundle, the tubules are pressed closely together leaving very small interstices for the interstitial cells Diminution of this pressure by permitting a separation of the tubules encourages the growth of the interstitial cells in the interstices In addition, the local trauma inflicted on the seminiferous tubules by the removal of the protruding mass of testicular tissue leads to a degeneration of the tubules in the region of the operation, and to a proliferation of interstitial cells Both these factors cause an increase of interstitial cells and reactivation of the internal secretion of the testes and this in turn leads to a stimulation of the whole endocrine system According to Steinach, the biological consequences of albugineatomy in senile animals are similar to those obtained by vaso-ligature So far this method has only been carried out on a few human subjects, but it may, be regarded as a possible repetition therapy for those cases in which bilateral vaso-ligature has already produced positive results

USEFUL WELFARE WORK

ARRANGEMENTS are being made by the Post Office authorities, through the British Spas Federation, whereby postmen and certain other members of the Post Office staffs will be able to obtain a course of spa treatment at any of the British spas at special inclusive terms Owing to the nature of their work postmen are, perhaps, especially subject to rheumatism, and in future any who have been medically recommended for spa treatment will no longer be prevented from obtaining that benefit on account of the cost The spa authorities have also offered to give every assistance in their power in helping to find suitable accommodation In view of the attention now being given to the question of making spa treatment available for insured persons suffering from rheumatic diseases, it is interesting that a great Government Department, probably the largest employer of labour in the country, should anticipate the National Insurance Scheme This useful piece of welfare work will be appreciated by those whom it is designed to help, and the taxpayer, at no cost to himself, stands to benefit by the more speedy return of the postman to duty and his increased efficiency

MIXTURES OF BUTTER AND MARGARINE

THE improvement of the methods available for distinction between butter oleo margarine, and vegetable margarine is a matter which interests not only the analyst but the medical man responsible for the dietaries of organised communities, whether armies, schools or *hospitals* It is important for the latter to know whether his charges are being fed on butter which is easily digestible and fairly rich in vitamin A, on beef olein, which is less satisfactory in these respects, or on mixtures largely composed of coconut and palm kernel oils, which are fats deficient in vitamin content, and not easily digestible by many people The use of hydrogenated oils is also to be watched for Reichert Polenske, and Kirschner have respectively furnished standardised means of measuring the acids volatile in steam, the insoluble acids volatile in steam, and the volatile acids which yield soluble silver salts If the assumption that definite values for each of these data could be assigned to the fats in question, we should be still in the position of having only three parameters for four unknowns, and further assumptions would be needed before a taste for simultaneous equations could be indulged Actually there is no difficulty in determining whether or not butter is substantially pure, or in distinguishing between oleo and nut-margarine It is when it is desired to ascertain the composition of mixtures that difficulties arise The current number of the *Analyst* contains papers by G D Elsdon and P Smith, and C H Manley on this subject Elsdon and Smith, who base their work on the Polenske and Reichert values alone quote Mr H Droop Richmond's estimate of the scope of their results He says "The most that can be expected from your results are first, it is possible to distinguish coconut oil and palm kernel oil, second, that when the two exist in the same mixture and the percentage of coconut oil is well under 30 per cent, an approximate idea of the relative proportions of the two oils can be deduced within about 15 or 20 per cent either way" The determination of butter fat in margarine is probably more trustworthy Mr Manley introduces a new value which is a measure of that (greater) portion of the soluble fatty acids which goes into aqueous solution when the saponified butter is acidified with sulphuric acid The process and a modified Kirschner process based on it appears to be useful for sorting butters and margarines, which is all that is claimed for them It is probable that the most useful development of the examination of these materials from the physiological point of view would be the application of some of the colorimetric methods of estimation of the growth-promoting vitamin The trustworthiness of some of these when compared with experiments on animals appears to be well established The economic aspect of a knowledge of the actual constituents of a mixture of fats will, however, continue to furnish incentive for improvements in analytical methods

CUTANEOUS ADSORPTION

A PAPER by Dr Antonio Fernandez in the *Semana Medica* for Jan 13th gives the result of some experimental work on the phenomena of cutaneous adsorption—i e, the union, whatever be its nature, between epidemal cells and a substance applied to their surface, such union not being chemical, nor solution in the strict sense, nor intracellular

The experiments show that the application of phenol resorcin, and β-naphthol, in solution or as an ointment, results in adsorption, the scales of the skin treated with them are found to give up the substances used in varying proportions, the quantity being greater with an ointment than with a solution Even after 24 hours, distinct traces of phenol were found in the scales removed from the areas treated The method used was simply to apply the substance with proper precautions to the interdigital spaces, when, after they had been left for 24 hours, some scales were removed and placed in tubes with water or with appropriate reagents In all cases the results were positive

The facts are interesting so far as they go, but they are too scanty to admit of any general deduction The research might well be extended to other substances, and also to showing how long the substance adsorbed remains in the cells of the epidermis before it is either absorbed or resecreted by the skin Variation in adsorption in different persons and different pathological conditions could also be studied and might give valuable results

THE DETECTION OF BILE-SALTS IN URINE

THE classical test devised by Matthew Hay for the detection of bile-salts in the urine has been investigated by Surgeon Lieut -Commander W I Gerrard,[1] who finds that it remains by far the best and easiest way of demonstrating their presence The test depends on the capacity of urine to sustain flowers of sulphur scattered over its surface The sulphur will float on the surface of normal urine but will sink to the bottom if the *surface-tension* has been reduced by bile-salts in solution To secure the best results, says Commander Gerrard, a standard technique must be used The sulphur should be shaken from a pepper-pot held by a clamp 2 5 c cm above the surface of the urine which should be contained in a rectangular cell This cell should be illuminated by a source of light shaded from the observer's eyes and shining into the urine at right angles to the direction in which he is looking The sulphur sinks at once, he says when the bile-salts are in a strength up to 1 in 10,000 If the vessel is gently shaken the presence of bile-salts can be detected after two minutes in a dilution of up to 1 in 10 000, by waiting ten minutes falling of the sulphur may be seen where salts are present in dilutions up to 1 in 120,000 Using this technique, Commander Gerrard found that in a seris of cases of salvarsan jaundice there was a greater disturbance in the elimination of bile-salts than of bile and pigments In many cases there was true dissociation in that although both bile-salts and pigments were present in the blood only the former appeared in the urine In so called catarrhal jaundice this dissociation was seldom detected, and he believes that the occurrence of bile-salts in the urine without bile pigment is a sign of definite hepatic damage

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[1] Journal of the Royal Naval Medical Service, July 1926

PHYSIQUE OF THE JEWS

In a recent lecture to the West End Jewish Literary Society, Dr Lyle Cameron described the Jews as, on the whole, a healthy and sturdy people Of the factors which had preserved them health had been one of the most important, and Jewish racial characteristics were evidently dominant or they would have been superseded long ago by those of the nations with which they had from time to time sojourned, and with whom there must have been admixtures of blood

Jews, he said, possessed a high degree of natural immunity to bacterial disease Ordinary septic infections troubled them but little They had a high resistance to malaria, and were the best suited of all white races to live in malarial districts

It had long been held that the Jewish race contributed more cases of insanity than any other Studies by A Pilez in Vienna, and C F Beadles in London, supported this view In 1880 Spitzka, in America, came to the conclusion that the various forms of insanity occurred in nearly the same proportions in the Anglo-Saxon, Teutonic, and Hebrew races In Germany in 1909 Sichel, whose deduction was based on the Frankfort Hospital for the Insane, found relatively more Jewish inmates than the corresponding percentage of the Jewish population of Frankfort This, however, only held for certain groups of mental disorders The other types revealed a smaller percentage of Jews than non-Jews Amaurotic family idiocy was almost, if not entirely, confined to Jews, and they had always been considered very prone to diabetes The view that tuberculosis was rare and cancer common amongst Jews required modification. It had not been definitely shown that they were more susceptible to tubercle than other races In the course of the discussion which followed, Dr G E Spero referred to the effects of dietary laws upon physique, and Dr David Nabarro pointed out that Jewish abstemiousness as regards alcohol heightened their resistance So long as the Jewish race adhered to the Mosaic Laws concerning food they were likely to avoid some of the diseases to which non-Jewish inhabitants of the same countries were prone Dr Nabarro regarded the nervous system and the mentality of the Jew as of a high order, it was, he thought, more likely to break down under stress, a fact for which persecution had been partly responsible

HOP-PICKING IN KENT DURING 1926

From time to time in comments on the annual reports for Kent we have referred to the inadequate arrangements made for the reception of the hop-pickers We have now received from Dr S N Galbraith, medical officer of health for the South-West Kent united health area, a special report on the measures adopted for the health of the hop-pickers during 1926 The report shows that the county council and local authorities, the Southern Railway, the Farmers' Union, and voluntary organisations have combined to form with representatives of the Ministries of Agriculture and Health, a committee for supervision of the work. This committee meets at Maidstone, under the chairmanship of Mr J A. Spender The magnitude of the problem is shown by the fact that last season 25,000 pickers were conveyed by rail to stations in South-West Kent, and that over 45,000 visitors were carried at the week-ends to the Kentish fields A very large number also travel by road Dispensaries are established throughout the district by many organisations, including the British Red Cross Society, the Salvation Army and Medical Missionary Societies Cases of sickness are admitted to various hospitals, and creches are established for ailing babies Certain occupational diseases are mentioned such as hop rash (237 cases), hopper's eye (95 cases), and hopper's gout (87 cases) Septic sores are common There were only ten cases of infectious disease notified The free supply of diarrhœa mixture by the Maidstone and Tonbridge rural district councils was discontinued without any increase of diarrhœa Many new improved huts have been constructed and many new cookhouses Water supplies and conveniences have been improved The inspection of the food has also received close attention For example, in the Maidstone Rural District 200 lb of meat and 50 lb of fish were seized, and in Tonbridge town a motor van containing 1125 lb of unsound meat on its way to be sold to the pickers was condemned On some farms prizes are awarded to the pickers who keep their huts and belongings in the best condition There is some trouble from water wastage, and efforts are being made to provide anti-waste taps for the hopper camps Accommodation of the 50,000 week-end visitors is very difficult; one farmer estimates that 500 visitors come to his farm at the week-end The lack of cookhouse accommodation is a source of trouble on most farms, and so is the danger from fires Dr A. C Parsons of the Ministry of Health says "From observations and enquiries made in the camps in the past two seasons, it is clear that a built-up fireplace and chimney are essential to a suitable cookhouse" The by-laws require one fireplace to 15 pickers

Eight deaths of hop-pickers or their children were registered Of these, six were those of infants, including three from gastro-enteritis and one from burns The report records very creditable effort by the official and voluntary agencies concerned

CAN TAR CAUSE PULMONARY CANCER?

An inquest was held on March 5th by the Manchester coroner, Mr C W W. Surridge, on a gas retort worker aged 59, who had been employed by the Manchester Corporation for 26 years This man was forced to leave his work in March of last year, and subsequently underwent an operation His duties at the gasworks were to keep the mains clear of tar and to charge up retorts after they had been scraped, he had worked a good deal with tar The Medical Inspector of Factories, Dr S A Henry, was present, and the corporation was represented It was stated that the deceased had not worn gloves whilst at work with tar, since he left, gloves had been provided For the Corporation, it was pointed out that all the men were invited to report any black spots or warts noticed on their bodies Medical examination was always available, free of charge, and everything possible was provided to keep the employees clean Dr Norman Kletz described the result of the post-mortem examination. A healed scar was found on the scrotum, due to a previous operation for epithelioma, but this disease had apparently been completely eliminated Death was due to a primary growth in the lung In reply to the coroner, Dr Kletz stated that there was no connexion between the previous disease of the scrotum and the lung He was not in a position to say that the growth in the lung could not have been caused by inhaling the fumes of tar, but he had never heard of such a case In returning an open verdict, the coroner said that there was no doubt that if epithelioma were treated in its earliest phase a complete cure resulted. Death had resulted from heart failure, due to the pulmonary growth, and he was satisfied that there was no connexion between the cause of death and the earlier disease of the scrotum. Only time and further investigation could show whether a cancerous growth in the lung could be produced by working amidst tar fumes The coroner added "Years ago it was not known that there was any connexion between disease of the scrotum and external contact with tar Now that has been proved to be so, and it may be in days to come that the inhalation of tar fumes will show some connexion with growths in the lungs It is not sufficiently established as yet, and I propose to return an open verdict"

PERSISTENT BOILS

To the Editor of The Lancet

Sir,—I shall be much obliged to any medical man suggesting a cure for persistent boils in a woman of 33, she has been a martyr to them for more than eight years Vaccines, extraction of all her teeth, injections of manganese, and other drugs too numerous to mention have been tried

I am, Sir, yours faithfully,
W L C.
March 5th, 1927

A CASE OF PREGNANCY FOLLOWING POLYGLANDULAR THERAPY

To the Editor of The Lancet

Sir,—A patient X (aged 30 and married for seven years) was seen by me about six months ago complaining of nervousness, dizziness, and "rounds of hot flushing" Her menstrual history was very irregular, sometimes she went for three months without any menstrual discharge There was no anæmia, but she had been told some years earlier that she would always be sterile as her uterus and ovaries were not developed

On pelvic examination I found a very small undeveloped uterus and the ovaries could only just be felt with great difficulty I kept the patient on ovarian tablets for a month with apparently no result I then gave her polyglandular tablets containing a mixture of thyroid, thymus, pituitary, suprarenal, mammary, ovarian substance, and cerebrin. Two tablets were given three times a day, and the following week she said that "the rounds of hot flushing" had disappeared and she slept much better Two months later her uterus and ovaries were found to have increased in size, and at the time of writing all her signs and symptoms point to an early pregnancy This opinion has also been arrived at by my senior colleague, Dr A C J Wilson

My conclusions in this case are that the patient was entering upon a premature menopause caused by a lack of balance of the endocrines resulting in maldevelopment of the uterus and ovarian insufficiency None of the other ductless glands showed any obvious atrophy or overdevelopment —I am, Sir, yours faithfully,

A. A Masser, M B, Ch B
Penistone, Sheffield, March 3rd, 1927

An Address
ON
SOME PROBLEMS IN THE TREATMENT OF NEUROSYPHILIS.

Delivered before the West Kent Medico-Chirurgical Society on March 11th, 1927,

BY J L BIRLEY, M D OXF , F R C P LOND.,
PHYSICIAN TO OUT PATIENTS, ST THOMAS'S HOSPITAL,
CONSULTANT PHYSICIAN TO THE ROYAL AIR FORCE

THE feelings of anyone who to-day ventures to express an opinion on this subject must be very different from those which would have been experienced a generation ago At that time it was generally agreed that mercury and the iodides were indicated in all forms of neurosyphilis with the exception of tabes and general paresis, and that the latter conditions, even supposing that they were syphilitic in origin, were not amenable to any therapy, specific or otherwise To-day, on the other hand, these comfortable beliefs have been rudely shaken by a body of knowledge which has been accumulated so rapidly that our powers of assimilation have been seriously strained and our equilibrium disturbed Conflict and controversy, however, are the handmaidens of progress, for although they are apt to engender extreme views at the outset, these in turn are prone to beget more moderate and stable opinions This paper can make no claim to solve the riddles of neurosyphilis; it represents merely an attempt to sift the known from the unknown, on the principle that the sense of one's ignorance is a much more useful thing than the sense of one's knowledge So little knowledge is absolute, and so great is the desire of the human mind to believe that it is

In the present century we can identify three important landmarks in the history of syphilis First, the discovery in syphilitic lesions of the *Spirochæta pallida* by the zoologist, Schaudinn, in 1905, and the subsequent finding of the parasite in the nervous tissues of paralytics and tabetics by Noguchi, secondly, the complement-fixation test published by Wassermann in 1908, and thirdly, the introduction in 1909 by Ehrlich of the spirochæticide salvarsan and of the allied compounds which have since replaced it Of the first of these discoveries it may be said that it has shed light on what was previously dark, of the second and third, that they have opened a door by which those who will may enter and explore the hidden mysteries of syphilitic disease

Two guiding principles must govern any discussion of the treatment of neurosyphilis The first is one of general application—viz, that all rational therapy must be based on an adequate comprehension of the nature of the lesions to be treated The second is more particular, and lies in the recognition which is becoming increasingly evident that the nervous system is, or may be, affected with greater frequency and at a much earlier stage of the proceedings than was hitherto supposed These two factors together indicate that our conceptions of neurosyphilis will be incomplete unless we have a clear idea of the changes induced in the organism from the time of infection until either the disease is eradicated or the patient dies The problems underlying neurosyphilis have become more and more identified with the broader problems of syphilitic infection in general, subject only to those peculiarities of structure and function which distinguish nervous from other tissues One practical result which has emerged from the recognition of this early involvement of the nervous system is that the observation and treatment of these early phenomena, many of them unaccompanied by subjective or objective evidence of nervous disease, are carried out by the syphilologist to the exclusion of the neurologist. To raise any fundamental objection to this procedure would savour of pedantry, for at this early stage the object of treatment—namely, the destruction of the spirochæte—can be achieved in a very large majority of cases, and the choice of drugs and dosage can confidently be left to the unfettered discretion of the syphilologist But the fact that these early stages of neurosyphilis have now come within the orbit of venereal departments has so stimulated their appetites that there is now a further tendency for neurosyphilis, and, in fact, for syphilis generally, in all its stages to become isolated from neurology and general medicine respectively This development I regard as in some respects unfortunate, since the problems underlying neurosyphilis are so diffuse that they merit the combined attention of workers in many fields and from varying angles

EARLY MENINGEAL REACTION

In the primary stage of syphilis, even before the Wassermann reaction in the blood has become positive, a lymphocytosis may be observed in the cerebro-spinal fluid in a small percentage of cases. The frequency of pathological changes in the fluid increases through the late primary stage (Wassermann reaction in blood positive) up to the so-called secondary stage (acute syphilis), until it reaches, in the absence of treatment, something like 50 per cent in the second and third half years from the time of infection. Speaking generally, it may be said that during the whole period of the first 18 months the essential change in the fluid is an excess of cells, and that a positive Wassermann reaction increases pari passu with the length of time which has elapsed since the primary infection As compared with the pleocytosis, however, a positive Wassermann reaction in the fluid is relatively rare during the first 18 months. For example, in 1314 cases of syphilis examined by Fildes, Maitland, and Parnell a pleocytosis of five cells or more per cubic millimetre were found in the cerebro-spinal fluid as follows —

Type of case	No of cases	Pleocytosis	Fluid W R +
Primary (blood W R negative)	144	21 (14 %)	0
Late primary (W R +), no rash, up to 18/12 from infection	371	80 (21 %)	12 (3 %)
Secondaries present or history of, (W R +) up to 18/12 from infection	512	160 (30 %)	35 (6 %)

The great majority of these cases had had no treatment or very inadequate treatment, and presented no clinical evidence of nervous disease. The changes in the cerebro-spinal fluid are due to a meningeal inflammation, and indicate that the meninges are reacting in a diffuse sort of manner to the presence of the spirochæte, much in the same way as the skin is reacting The condition, in fact, is in the nature of a meningeal rash, and like the cutaneous eruption, shows a tendency to spontaneous resolution and repair But acute syphilis is not a disease of the covering or supporting tissues only, since at an early stage the virus has become generalised by the blood stream and the parasites may penetrate into all the body tissues, including the parenchymatous, more specialised, tissues of various organs, such as the liver, testis, and central nervous system And just as a degeneration of the essential hepatic cells, recognised as an acute yellow atrophy, may be observed in the acute stages, so also, if rarely, a parenchymatous degeneration of nerve-cells and neuroglia may occur within a few months of infection (acute encephalitis) The question, therefore, arises, What is the significance of the early meningeal reaction in relation to late parenchymatous syphilis?

Significance of the Reaction

That the meningeal reaction is a reaction to parasites within the meninges, and not a reaction à distance can hardly be disputed Do the parasites

PHYSIQUE OF THE JEWS

IN a recent lecture to the West End Jewish Literary Society, Dr Lyle Cameron described the Jews as, on the whole, a healthy and sturdy people Of the factors which had preserved them health had been one of the most important, and Jewish racial characteristics were evidently dominant or they would have been superseded long ago by those of the nations with which they had from time to time sojourned, and with whom there must have been admixtures of blood

Jews, he said, possessed a high degree of natural immunity to bacterial disease Ordinary septic infections troubled them but little They had a high resistance to malaria, and were the best suited of all white races to live in malarial districts

It had long been held that the Jewish race contributed more cases of insanity than any other Studies by A Pilcz in Vienna, and C F Beadles in London, supported this view In 1880 Spitzka, in America, came to the conclusion that the various forms of insanity occurred in nearly the same proportions in the Anglo-Saxon, Teutonic, and Hebrew races In Germany in 1909 Sichel, whose deduction was based on the Frankfort Hospital for the Insane, found relatively more Jewish inmates than the corresponding percentage of the Jewish population of Frankfort This, however, only held for certain groups of mental disorders The other types revealed a smaller percentage of Jews than non-Jews Amaurotic family idiocy was almost, if not entirely, confined to Jews, and they had always been considered very prone to diabetes The view that tuberculosis was rare and cancer common amongst Jews required modification It had not been definitely shown that they were more susceptible to tubercle than other races In the course of the discussion which followed, Dr G E Spero referred to the effects of dietary laws upon physique, and Dr David Nabarro pointed out that Jewish abstemiousness as regards alcohol heightened their resistance So long as the Jewish race adhered to the Mosaic Laws concerning food they were likely to avoid some of the diseases to which non-Jewish inhabitants of the same countries were prone Dr Nabarro regarded the nervous system and the mentality of the Jew as of a high order, it was, he thought, more likely to break down under stress, a fact for which persecution had been partly responsible

HOP-PICKING IN KENT DURING 1926

FROM *time to time in comments on the annual reports for Kent* we have referred to the inadequate arrangements made for the reception of the hop-pickers We have now received from Dr S N Galbraith, medical officer of health for the South-West Kent united health area, a special report *on the measures adopted for the health of the hop-pickers* during 1926 The report shows that the county council and local authorities, the Southern Railway, the Farmers' Union, and voluntary organisations have combined to form with representatives of the Ministries of Agriculture and Health, a *committee for supervision of the work.* This committee meets at Maidstone, under the chairmanship of Mr J A. Spender. The magnitude of the problem is shown by the fact that last season 25,000 pickers were conveyed by rail to stations in South-West Kent, and that over 45,000 visitors were carried at the week-ends to the Kentish fields A very large number also travel by road Dispensaries are established throughout the district by many organisations, including the British Red Cross Society, the Salvation Army and Medical Missionary Societies Cases of sickness are admitted to various hospitals, and creches are established for ailing babies Certain occupational diseases are mentioned such as hop rash (237 cases), hopper's eye (95 cases), and hopper's gout (87 cases) Septic sores are common There were only ten cases of infectious disease notified The free supply of diarrhœa mixture *by the Maidstone and Tonbridge* rural district councils was discontinued without any increase of diarrhœa Many new improved huts have been constructed and many new cookhouses Water supplies and conveniences have been improved The inspection of the food has also received close attention For example, in the Maidstone Rural District 200 lb of meat and *50 lb of fish* were seized, and in Tonbridge town a motor van containing 1125 lb of unsound meat on its way to be sold to the pickers was condemned On some farms prizes are awarded to the pickers who keep their huts and belongings in the best condition There is *some trouble* from water wastage, and efforts are being made to provide anti-waste taps for the hopper camps Accommodation of the 50,000 week-end visitors is very difficult, one farmer estimates that 500 visitors come to his farm at the week-end The lack of cookhouse accommodation is a source of trouble on most farms, and so is the danger from fires Dr A. C Parsons of the Ministry of Health says "From observations and enquiries made in the camps in the past two seasons, it is clear that a built-up fireplace and chimney are essential to a suitable cookhouse." The by-laws require one fireplace to 15 pickers Eight deaths of hop-pickers or their children were registered Of these, six were those of infants, including three from gastro-enteritis and one from burns The report records very creditable effort by the official and voluntary agencies concerned

CAN TAR CAUSE PULMONARY CANCER?

AN inquest was held on March 5th by the Manchester coroner, Mr C W W Surridge, on a gas retort worker aged 59, who had been employed by the Manchester Corporation for 26 years This man was forced to leave his work *in March of last year, and subsequently underwent* an operation His duties at the gasworks were to keep the mains clear of tar and to charge up retorts after they had been scraped, he had worked a good deal with tar The Medical Inspector of Factories, Dr S A Henry, was present, and the corporation was represented It was stated that the deceased had not worn gloves whilst at work with tar, since he left, gloves had been provided For the Corporation, it was pointed out that all the men were invited to report any black spots or warts noticed on their bodies Medical examination was always available, free of charge, and everything possible was provided to keep the employees clean Dr Norman Kletz described the result of the post mortem examination A healed scar was found on the scrotum, due to a previous operation for epithelioma, but this disease had apparently been completely eliminated Death was due to a primary growth in the lung In reply to the coroner, Dr Kletz stated that there was no connexion between the previous disease of the scrotum and the lung He was not in a position to say that the growth in the lung could not have been caused by inhaling the fumes of tar, but he had never heard of such a case In returning an open verdict, the coroner said that there was no doubt that if epithelioma were treated in its earliest phase a complete cure resulted Death had resulted from heart failure, due to the pulmonary growth, and he was satisfied that there was no connexion between the cause of death and the earlier disease of the scrotum. Only time and further investigation could show whether a cancerous growth in the lung could be produced by working amidst tar fumes The coroner added "Years ago it was not known that there was any connexion between disease of the scrotum and external contact with tar Now that has been proved to be so, and it may be in days to come that the inhalation of tar fumes will show some connexion with growths in the lungs It is not sufficiently established as yet, and I propose to return an open verdict."

PERSISTENT BOILS

To the Editor of THE LANCET

SIR,—I shall be much obliged to any medical man suggesting a cure for persistent boils in a woman of 33, she has been a martyr to them for more than eight years Vaccines, extraction of all her teeth, injections of manganese, and other drugs too numerous to mention have been tried

I am, Sir, yours faithfully,
W L C.

March 5th, 1927

A CASE OF PREGNANCY FOLLOWING POLYGLANDULAR THERAPY

To the Editor of THE LANCET

SIR,—A patient X (aged 30 and married for seven years) was seen by me about six months ago complaining of nervousness, dizziness, and "rounds of hot flushing" Her menstrual history was very irregular, sometimes she went for three months without any menstrual discharge There was no anæmia, but she had been told some years earlier that she would always be sterile as her uterus and ovaries were not developed

On pelvic examination I found a very small undeveloped uterus and the ovaries could only just be felt with great difficulty I kept the patient on ovarian tablets for a month with apparently no result I then gave her polyglandular tablets containing a mixture of thyroid, thymus, pituitary, *suprarenal, mammary, ovarian substance,* and cerebrin Two tablets were given three times a day, and the following week she said that "the rounds of hot flushing" had disappeared and she slept much better Two months later her uterus and ovaries were found to have increased in size, and at the time of writing all her signs and symptoms point to an early pregnancy This opinion has also been arrived at by my senior colleague Dr A C J Wilson

My conclusions in this case are that the patient was entering upon a premature menopause caused by a lack of balance of the endocrines resulting in maldevelopment of the uterus and ovarian insufficiency None of the other ductless glands showed any obvious atrophy or overdevelopment —I am, Sir, yours faithfully,

A A MASSER, M B, Ch B

Penistone, Sheffield, March 3rd, 1927

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ND CHRONIC SYPHILIS

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the long interval between infection and the onset
parasyphilis, and (*d*) the apparent "systemic"
ure of the pathological changes Those who are
posed to the conception of "parasyphilis" and
ist on the fundamental pathological unity of all
philitic processes point out that (*a*) the resistance
treatment is due to a failure on the part of arsenical
parations to penetrate to the deeper tissues which
bour the spirochæte; that (*b*) the spirochæte has
n demonstrated in the brains and cords of paralytics
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y but even supposing that this unawareness is due to ignorance on my part, I should still feel justified in believing in its existence for on no other hypothesis can I explain the phenomena of pneumonia or of pneumococcal peritonitis But as regards parasyphilis the toxin theory does not seem to explain the observed facts for it is difficult to conceive inter alia of a toxin operating over a long period on such vulnerable structures as the essential elements of the nervous system without producing any symptoms until the final collapse On these grounds—viz. incompatibility with the observed facts and readier explanation by a quite different hypothesis—the theory may be inadmissible, but it must be pointed out that its repudiation does not necessarily entail the view that spirochætes never produce toxins

With respect to the other objections to Fournier's conception of parasyphilis there can be no dispute as to the presence of the spirochæte in the brains of paralytics but there is some difference of opinion as to their distribution At first they were found only in the substance of the brain and in intimate relation to the ganglion cells whereas more recently they have also been observed in the perivascular tissues and even within the lumen of the vessels They can only rarely be discovered in the meninges or the meningeal vessels In tabes their demonstration is more difficult, but Richter has recently described them in the posterior roots These points are of importance in connexion with treatment.

ARE THE LESIONS "SYSTEMIC"?

Tabes, general paralysis and "tabetic" optic atrophy have long been regarded as systemic diseases but the more we know of their morbid anatomy the less systemic do they become The changes in general paralysis of the insane are not limited to a selective degeneration of the cells of the frontal lobes; on the contrary pathological alterations in the mesoblastic elements are frequently present alterations which are indistinguishable from those met with in much earlier manifestations and are gummatous in character Both sets of changes are referable to the heightened susceptibility of the tissues both parenchymatous and mesoblastic, by virtue of which they react excessively to the presence of a relatively small number of spirochætes

The condition of affairs in tabes is complicated by the fact that there seems to be no unanimity as to the essential lesion responsible It is generally agreed that the exogenous fibres of the posterior root system are affected and not the endogenous but the localisation and nature of the lesion are still matters of controversy According to Richter the essential lesion is a chronic granuloma of the extramedullary portion of the posterior roots between the cord and the posterior root ganglion affecting first the nerve-sheaths and later the nerve-fibres which slowly degenerate The short and medium fibres degenerate before the long fibres and the degeneration never extends beyond the primary neuron—i e, as far as the arborisations round the cells at the base of the posterior horns in the case of the shorter fibres and the cells of the medullary nuclei in the case of the long fibres This secondary degeneration leads to (or is associated with) proliferation of the supporting neuroglia which results in a degeneration of the endogenous fibres of the posterior columns so that finally we have the text-book picture of the disease—viz almost total degeneration of the posterior columns But the picture is apt to be misleading unless it is realised that the posterior column degeneration is secondary to events taking place in the posterior roots, and that even the latter are very unequally affected For example the trigeminal upper thoracic lower lumbar and upper sacral roots are far more frequently and earlier involved than the intervening roots It has been suggested that this curious distribution is due to the passage of the spirochæte or its toxin along the perineural lymphatics drained by those peripheral areas in which "secondary" lesions are most common—e g face always gain entrance to the essential nervous elements by traversing the meninges, and do they do so at this early stage? The answer is probably Yes in both cases The French school have especially insisted on the fact that a meningitis, as evidenced by an increase of cells and of globulin, always precedes involvement of the nervous parenchyma, and dence is accumulating that in late neurosyphilitic onditions, such as tabes, the fluid, though not infrequently normal when the patient comes under observation, has at some previous time shown pathological changes Further, unless the spirochæte gains admittance to the nervous tissue proper during the acute stage, it has to be assumed that in latent syphilis the parasite wanders from some distant focus until it comes to rest in the brain or cord There is no evidence of such migration, in fact, it would seem that such nests of spirochætes as are not destroyed in the acute stage settle down into some intimate relation with the tissues, by virtue of which they become fixed and the condition remains "latent" over long periods

If this reasoning is correct, we are forced to the following conclusions (*a*) that the meningeal reaction is in itself not direct evidence of the penetration of the parasite into the essential parenchyma, (*b*) that where such penetration occurs it is probably associated with a transient [illegible] that access to the nervous elements occurs in the acute stage, although clinical evidence thereof may be deferred for many years What we require and do not possess is some means of determining in any given case the lodgment of the parasite in the nervous parenchyma apart from its coverings and blood-vessels If, on the other hand, pathological changes in the fluid are not a sine quâ non for deeper penetration of the parasite, we should have to admit that a persistently normal fluid during the first two years was no security against the subsequent development of general paralysis of the insane or tabes

THE COURSE AND SIGNIFICANCE OF CHANGES IN CEREBRO-SPINAL FLUID

Having noted the existence of these early meningeal phenomena, we now have to consider the changes which they undergo and the significance of those changes Here we are on much more difficult ground First it must be recalled that the meningeal reaction is part of the acute stage of syphilis, the period, that is to say, at which the organism is rapidly mobilising all its mechanisms of defence until a climax is finally reached, culminating in a vigorous humoral and cellular reaction characterised by the rapid production of antibodies and the destruction, partial or complete, of the invading parasites This stage would seem to be followed by a period of relative exhaustion, during which the sensitiveness of the tissues undergoes a rapid diminution and any spirochætes which have escaped destruction relapse into a state of tranquillity as judged by clinical standards In view of the natural resistance of the tissues it is easy to understand that an abnormal fluid in the acute stage may spontaneously revert to normality or can be brought to normality by treatment, in fact, this appears to happen in something like 85 per cent of the cases, and in a large proportion of such cases the fluid remains normal permanently. It is the refractory minority which provides us with our difficulties, for we have no means of knowing what individuals will recover spontaneously or under treatment without observation and trial If it were possible to measure individual immunity, to anticipate the extent of individual capacity to react, we could separate at the outset the refractory minority from the tractable majority

In this connexion som [illegible] on the treatment of acute syphilis [illegible] themselves We can omit from consi [illegible] th stage before the Wasse [illegible] positive in the blood, su [illegible] cure can [illegible] with me [illegible] themselves for treatment within six months of infection all with positive blood Wassermanns, and that after a course of treatment, represented by X, we obtain 85 cures, and that by considerably increasing the dosage by an amount represented by Y we cure the remaining 15 When the next batch of 100 similar cases present themselves for treatment, it would be clearly inadmissible to prescribe an X+Y course of treatment with a view to obtaining 100 per cent of cures, since by doing so we should run the risk of overtreating 85 per cent The dosage of arsenical preparations usually considered adequate has shown a tendency to increase very materially during the past decade, and although much of the increase is *undoubtedly* justifiable and productive of good results there seems to be a danger of its passing beyond the bounds of judicious therapy, and that this excess of zeal is based to some extent on a misinterpretation of the value of statistical data

To return to the changes in the cerebro-spinal fluid, various possibilities are open to consideration (1) The fluid remains normal throughout, here we can confidently exclude any risk of neurosyphilis, early or late (2) There is a pleocytosis which disappears spontaneously or under treatment within six months. Most of such fluids remain normal permanently, and according to Dreyfus, if they are still normal one after treatment has ceased, neurosyphilis is improbable (3) The fluid after becoming normal reverts to 'positive' again within a few months. Such fluids can with difficulty be brought back to normal again by intensive treatment, but they show a tendency to relapse (4) There is a feeble meningeal reaction or possibly none at all the parasite, however, gradually acquires better conditions of growth and after a lapse of many years, pathological changes appear in the fluid which may be permanent What is the proportion of those in the last three groups who develop neurosyphilis is unknown, nor do we know with any completeness the changes which the fluid undergoes in the years preceding the advent of such conditions as tabes or general paralysis of the insane All that seems reasonably certain is the fact that fluids which have reverted from "negative" to "positive," as well as those which become positive many years after infection, are altered by treatment with the greatest difficulty or not at all We may regard these differences of behaviour in the cerebro-spinal fluid as an expression of different degrees of individual reaction to the spirochæte

TREATMENT OF MENINGO-VASCULAR SYPHI

Before passing on to the consideration of chronic syphilis, mention should be made of the fact that the nervous system may suffer severe damage in the acute stage as a result of pathological changes invo [illegible] primarily the meninges and blood-vessels At [illegible] stage, however, by energetic treatment the virus [illegible] be destroyed, the cerebro-spinal fluid brought ba [illegible] normal, and the patient restored to health apart [illegible] such residual palsies as may have been determ [illegible] by the destructive character of the initial les [illegible] As a general rule, it may be stated that the sh [illegible] the interval which has elapsed from the pri [illegible] infection, the better the prognosis, and that [illegible] meningo-vascular syphilis is rarely followed in [illegible] years by tabes and even more rarely by g [illegible] paralysis

To discuss the details of treatment of acute ne [illegible] syphilis would be out of place, but a few br [illegible] principles may be mentioned Our object at t [illegible] stage is to sterilise the meninges as rapidly as possib [illegible] and for this purpose stabilarsan or neosalvarsan [illegible] essential I am, however, convinced that me [illegible] properly used, as, for example, by inunction, is st [illegible] an indispensable adjunct, and is slightly preferab [illegible] to bismuth, although I must confess to have [illegible] insufficient experience of the more recent bismu [illegible] preparations such as bismoxyl, which are free fro [illegible] he objections which attached to some of the earli [illegible] Lastly, the iodides in large doses up to gr [illegible] y or even more may sometimes effect a m [illegible] when arsenic and mercury have failed, and they should form part of the treatment in the intervals of arsenical administration

ALLERGY AND CHRONIC SYPHILIS

It is well known that the lesions of late (chronic) syphilis present certain clinical features which differentiate them from the lesions of the acute stage A consideration of these peculiarities reveals the fact that the differences are of degree rather than of kind, and depend on an alteration in the reactive condition of the tissues concerned This alteration is in the nature of a greatly increased sensitiveness to those spirochætes which have escaped destruction in the acute stage The phenomenon is called allergy In this hyperallergic condition the tissues react excessively to a small number of spirochætes, and the reaction is characterised by a great tendency to proliferation and degeneration Where the mesoblastic, supporting, bactericidal tissues are chiefly involved, the result is excessive fibrosis, strangulation of blood-supply, and gummatous necrosis Where, on the other hand the more specialised, highly differentiated, and consequently less resistant cells, whether visceral or nervous, are concerned, the result will be degeneration This increased susceptibility of the tissues is developed after the subsidence of the acute stage and would appear to be dependent on the intoxication of the tissues which is necessarily associated with destruction of spirochætes in large numbers, and the consequent liberation of toxin and its fixation by the tissues It must however, be remembered that if late parenchymatous neurosyphilis is to be interpreted in terms of allergy, it has to be admitted that this increased susceptibility of the tissues can develop in the absence of any clinical signs of acute syphilis; for in tabes and general paralysis of the insane a history of secondaries is the exception and not the rule

LATE PARENCHYMATOUS NEUROSYPHILIS

At the International Congress of Medicine held in London in 1913, a discussion took place on the Nature of the Condition termed Parasyphilis A few months prior to the meeting Noguchi had succeeded in demonstrating the spirochæte in the brains of paralytics, and the older theories were beginning to wobble The toxic-degenerative theory of parasyphilis, introduced by Fournier in 1894, assumed that tissues long exposed to the toxins of syphilis finally give way under the strain and undergo a rapidly progressive decay, and that in general paralysis the degenerative products exert an irritant effect on the supporting tissues of the brain with consequent changes in these structures This view seemed to be warranted by (*a*) the resistance of parasyphilitic conditions to antisyphilitic remedies, (*b*) the absence of the spirochæte from the lesions, (*c*) the long interval between infection and the onset of parasyphilis, and (*d*) the apparent "systemic" nature of the pathological changes Those who are opposed to the conception of "parasyphilis" and insist on the fundamental pathological unity of all syphilitic processes, point out that (*a*) the resistance to treatment is due to a failure on the part of arsenical preparations to penetrate to the deeper tissues which harbour the spirochæte, that (*b*) the spirochæte has been demonstrated in the brains and cords of paralytics and tabetics; that (c) the long interval is due to the development of increased tissue susceptibility, that (*d*) the changes are not strictly "systemic" all, and their peculiar distribution can be explained increased opportunities for spirochætal invasion oyed by certain territories of the nervous system pposed to others

fore considering these points a little more fully other objection which is frequently advanced t the toxic theory may be noted—viz that the is "hypothetical' The question arises What t by the term "hypothetical toxin'? I am for example that the toxin of pneumococcal s has yet been proved to have any phenomenal but even supposing that this unawareness is due to ignorance on my part, I should still feel justified in believing in its existence, for on no other hypothesis can I explain the phenomena of pneumonia or of pneumococcal peritonitis But as regards parasyphilis, the toxin theory does not seem to explain the observed facts, for it is difficult to conceive inter alia of a toxin operating over a long period on such vulnerable structures as the essential elements of the nervous system without producing any symptoms until the final collapse On these grounds—viz, incompatibility with the observed facts and readier explanation by a quite different hypothesis—the theory may be inadmissible but it must be pointed out that its repudiation does not necessarily entail the view that spirochætes never produce toxins

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Primary or tabetic optic atrophy can no longer be regarded as a systemic degeneration; the changes in the optic nerves involve the interstitial tissues primarily and the nerve-fibres secondarily. Moreover, as Léri and others have pointed out, the retinal cells, the axons of which are represented by the optic nerve-fibres, remain intact, and contrary to what is often stated, the condition does not always go on to complete blindness.

LATENCY.

The latency of "parasyphilitic" affections is not confined to the nervous system, since many other syphilitic lesions, such as those involving the bones, are similarly delayed. Nevertheless, the latency of the nervous lesions is perhaps more consistent and pronounced than those of any other system. In general paralysis of the insane the average in 400 cases was 17 years from the date of infection; in tabes it is probably about the same or even longer. It is possible that the latency is in some way related to a phenomenon which has long been recognised—viz., the absence, or, at any rate, the insignificance, of "secondary" manifestations, as well as the relative rarity of gummatous lesions in tabetics and paralytics. Some curious views have emerged from a recognition of this singular coincidence. For example, general paralysis of the insane is about five times commoner in men than in women, and so uncertain was the diagnosis of chancre in the female sex before the discovery of the spirochæte and the Wassermann reaction, that our forefathers were in the habit of withholding treatment until the appearance, or otherwise, of a rash settled the matter. It has been suggested that the rarity of general paralysis of the insane in women is due to the fact that they were rarely treated in the primary stage. A precisely similar line of argument is responsible for the view that artificial—i.e., therapeutic—"suppression" of acute syphilis, particularly by the use of arsenical preparations, predisposes to tabes and general paralysis of the insane, or to put it more bluntly, "if you have syphilis at all, have it badly." But it must not be forgotten that in an enormous majority of cases of tabes and general paralysis of the insane the absence of secondaries is not due to treatment, since no treatment, or only very inadequate treatment, has been received. It is, therefore, not the suppression of the rash, but rather its failure to appear which is significant. Its non-appearance must be ascribed to some individual peculiarity, either of the virus or of the patient. Now, unless we accept the conception of a neurotropic virus, which on many other grounds appears inadmissible, there is little or no evidence of variations in virulence of different strains of spirochæte, and we have to conclude that the problem concerns the soil rather than the seed. It is permissible, therefore, to regard the presence of acute secondary manifestations in the absence of treatment as a token of the production of antibodies of sufficient quality and quantity to afford a considerable measure of protection to the essential nervous elements against subsequent degeneration. Such a view in no way justifies the withholding of treatment in expectation of a rash, although it is admittedly difficult to adduce satisfactory evidence that early treatment with arsenic, mercury, or both, influences the incidence or latency of late neurosyphilis in any particular direction.

The latency of parenchymatous neurosyphilis seems to me difficult to account for on any hypothesis, but it is not peculiar to syphilis, for a somewhat similar state of affairs prevails in disseminated sclerosis and encephalitis lethargica. The opponents of the toxic theory invoke two factors to explain the phenomenon: (a) an increased susceptibility of the tissues concerned, which renders them unduly vulnerable to (b) an exacerbation of spirochætes. How and why this exacerbation occurs is obscure. As regards (a) it is recognised that the reaction of the organism to microbic invasion is of two kinds, cellular and humoral, and it is not unlikely that these two modes of reaction are not necessarily proportional to one another in time or degree. On this hypothesis, for example, it may be supposed that in the tabetic, who has never had any manifestations of acute syphilis and only a very insignificant chancre, the cellular reaction is subnormal, whereas the humoral reaction (antibody production) is considerable, with the result that large numbers of parasites are fixed and rendered innocuous in the secondary stage, although a few escape and remain locked up in the nervous parenchyma. In such an individual it is further natural to suppose that owing to the relative meagreness of the cellular reaction hyperal'ergie takes an abnormally long time to develop; accordingly, many years elapse before his nervous system is capable of reacting forcibly to any exacerbation of its imprisoned spirochætes. These considerations are supported by the fact that in "mild" syphilis gummata are later in appearing than in "bad" syphilis. In the latter the cellular reaction is proportionately more pronounced than the humoral; hyperallergie develops quickly and gummatous syphilides follow close on the secondary stage. A serious inadequacy of both types of reaction is represented by cases of acute cachectic syphilis, where the patient dies, so to speak, without a struggle. This last mode of response is particularly found in unsyphilised communities, but is rare among the races of Western Europe. There can, I think, be very little doubt that the Western European is becoming more and more resistant to syphilis, and that this increasing immunity lies behind many of the problems of syphilis. It is possible that the preponderance of the humoral reaction over the cellular is an expression of this immunity, and if this be true, we should expect to find a greater incidence of parenchymatous neurosyphilis in those communities longest exposed to syphilitic infection. Whether this is so or not, I do not know; the statistical evidence is very conflicting.

THE WASSERMANN REACTION AND RESISTANCE TO TREATMENT

The treatment of syphilis is nowadays so intimately bound up with variations in the Wassermann reaction, that it is impossible to discuss one without the other. As is well known, the test is based on the fact that an antigen in the presence of its own specific immune body reacts or combines with the latter in such a way that the combination so formed has the power of "fixing" any complement that may be present. If now to such a system a hæmolytic serum (immune body) and its specific antigen (sensitised red cells) be added, no hæmolysis occurs, since the complement necessary to "complete" the hæmolysis is not available, being fixed. If, however, the antigen and immune body are not strictly homologous, the complement will remain free to combine with the hæmolytic amboceptor-antigen complex, and complete hæmolysis will result It is further well known that in Wassermann's original technique the antigen employed was specific—i e, an extract of syphilitic liver—but it was soon found that non-specific—i e, non-syphilitic—antigens served the purpose equally well, and the antigen most commonly used in this country and America at the present time is an alcoholic extract of non-syphilitic heart muscle with the addition of cholesterin In other words, the antigen now employed is a solution of lipoids and not necessarily, at any rate, an antigen at all Clearly, then, the reaction is not biologically specific in the sense that the agglutination of typhoid bacilli by typhoid serum is specific, and we accordingly are not justified in regarding the Wassermann reaction, or the simpler precipitin tests of Sachs-Georgi and others, as true immunity reactions But in view of the great delicacy of the test as an indication, at least in non-tropical countries, of past or present syphilitic infection, it is evident that we are dealing with some substance which is almost invariably present in the blood as a consequence of such infection The question arises, What is the nature of the reacting substance (reagin) and where does it arise? Until these questions can be answered the significance of a positive Wassermann reaction, apart from diagnosis, must remain to some extent conjectural, and so far as I am able to form a judgment they still await an answer It is thought that this reagin may be a lipoid-protein compound produced by the tissue cells in contact with the parasite, and that this antibody-like substance, linked with serum protein, possesses a greater aptitude for flocculating organic lipoids in suspension than is possessed by the serum proteins of a healthy individual According to this view, reagin cannot be regarded as a true antibody in the sense that it is inimical to the spirochæte It might be interesting to compare the non-specific Wassermann reaction in all stages of syphilis with a reaction carried out with a specific antigen—e g, a culture of dead spirochætes

As to the diagnostic value of the reaction there can surely be only one opinion—namely, that in the hands of a competent serologist it constitutes one of the most delicate tests of its kind in the whole range of medicine As regards its significance in other directions, however, opinions vary Does, for example, a positive reaction indicate that the tissues *are reacting* to living spirochætes, or merely that they *have so reacted* in the past? Is, in other words, a positive reaction tantamount to a *persistence* of activity of the infective agent? So long as the reaction remains biologically unspecific *it is difficult* to see how these vital questions can be answered with any finality, and accordingly we shall continue to be witnesses of courses of treatment being meted out to positive Wassermann reactions, irrespective of any other evidence of the existence of syphilitic lesions In unwise hands the impetus given by the researches of Ehrlich and Wassermann is in danger, as Nonne has said, of degenerating into a frenzy, while its tendency to promote syphilophobia, a condition more intractable than syphilis itself, constitutes a real and increasing menace; a passion to treat syphilis does not always preclude neglect of the syphilitic But it is as well to remember that anyone who takes up the attitude that he intends to regard a positive reaction as evidence of spirochætal activity until it is proved to be otherwise, and, therefore, is bound to treat it, is perfectly justified in doing so provided that he does not lose sight of the fact that the mental reaction of his patient is at least as important as that of his serum

VIEWS CONCERNING TREATMENT.

Success in the treatment of such conditions as tabes and general paralysis of the insane is obviously limited in scope, we cannot expect to do more than check or at the most arrest the course of the disease There is no question of restoring the function of nerve-fibres or cells which have already undergone degeneration But even within these limits late parenchymatous neurosyphilis is resistant to treatment, as also are the associated changes in the cerebro-spinal fluid. Seeing that our ideas as to treatment must conform with our ideas of the nature of the condition to be treated, it is not surprising to find two extreme views in opposition The one, maintaining that these conditions represent a premature decay of nervous elements as a result of prolonged intoxication by the syphilitic virus, declaims on the utter futility of any treatment at all This view, now almost defunct, provides a sharp contrast with the other, which, insisting on the fundamental pathological unity of all syphilitic processes, advises with logical consistency antisyphilitic treatment for the rest of the patient's life When one inquires why the results of life-long treatment are not more encouraging, one is offered the choice of two explanations The first is that the essential nervous elements, whether frontal lobes or posterior roots, owing to certain anatomical arrangements or physiological peculiarities, cannot be reached by the remedies employed, and that treatment can only effect improvement to the extent that the lesions are mesoblastic and not parenchymatous The same line of argument maintains that positive Wassermann reactions which persist in spite of treatment are due to spirochætes locked away in inaccessible non-vascular fastnesses, such as the wall of the aorta The whole subject bristles with difficulties, and the alleged impenetrability of the brain to arsenic seems to require further investigation Moreover, evidence is accumulating that in general paralysis of the insane many spirochætes may be found in the perivascular sheaths or even within the lumen of the small vessels, in situations, that is to say, where theoretically they should be accessible The second plea put forward by those who favour life-long treatment is that the patient would be worse without it As regards general paralysis of the insane a defence of this kind is difficult to accept; possibly the use of tryparsamide may alter the position, but omitting from the argument a drug the effects of which, though promising, cannot yet be estimated, there is no convincing evidence that treatment with anti-syphilitic remedies has any consistent effect in checking or aborting the disease As least, the results since the discovery of 606 have not been sufficiently encouraging to obstruct the introduction of an entirely different form of therapy—viz, the non-specific With regard to tabes, the complicating factors are so numerous and the results correspondingly difficult to estimate that dogmatism should be impossible Unfortunately, it flourishes abundantly From being an enthusiastic advocate of energetic arsenical treatment as a means of aborting the tabetic process and allaying its more unpleasant symptoms, I have become more guarded in my views and not a little sceptical As regards the choice of drugs, I should now unhesitatingly vote for mercury, and it is surely no light matter to disregard the favourable opinion of mercury held by such experienced and prudent neurologists as Babinski and Nonne Any opinion, however, of the extent of our ability to arrest or abort the disease is valueless unless it is realised that tabes frequently comes to a halt, often at an early stage, in those who have been treated (*a*) adequately, (*b*) inadequately, and (*c*) not at all. The *doubt* arises as to what extent, if any, groups (*a*) and (*b*) belong to group (*c*) The point might be settled by withholding treatment from large numbers of tabetics, particularly in the early stages, an experiment which, at the moment, I should regard as scarcely justifiable in view of my belief that to an extent which is *appreciable*, but not capable of more precise definition, the disease can be arrested or aborted by treatment with mercury

Alterations in the blood and cerebro-spinal *fluid* Wassermann reactions are by many regarded as an index to the efficacy of treatment As between general paralysis of the insane and tabes the position is somewhat different In the former both blood and cerebro-spinal fluid are strongly positive, are unaffected by specific treatment, and often remain positive during remissions In general paralysis of the insane the spirochætes are confined to the nervous system, and are only exceptionally found in the other body organs, hence the positive blood reaction may be presumed to be an "overflow" from the brain In tabes on the other hand, the reaction in the blood is positive in only 70 per cent. of the cases, and in approximately the same number in the fluid The blood reaction in tabes can be left out of discussion, as it may be due to visceral changes such as aortitis, wholly outside the nervous system Although many of the changes in the cerebro-spinal fluid in tabes (protein content, cells, colloidal gold curve) seem to be influenced by specific treatment the Wassermann reaction is highly but not completely resistant In many tabetics the fluid Wassermann reaction changes from positive to negative irrespective of treatment and once this has occurred it usually remains negative Unfortunately however many tabetics with negative fluids get rapidly worse in spite of treatment, and many with positive ones remain stationary, irrespective of treatment

For example, a patient of mine now aged 60 admits infection in 1894, he took mercury pills for a month and had no secondaries, his children, all under 20, are healthy, in 1909 Argyll Robertson pupils and absent knee- and ankle-jerks were accidentally discovered, at that time his blood was normal and his cerebro-spinal fluid abnormal (W R +), and he again took mercury pills for a month He has never had any further treatment In 1915 he came under my care with a gunshot wound in the thigh, in addition to the above signs he had some ulnar and lumbo-sacral analgesia, and his fluid was normal It was again normal in 1919, and to-day—i e, after 18 years—his condition is in statu quo and he has never had any symptoms of nervous disease

Lightning pains and the various crises of tabes are sometimes regarded as evidence of the activity of the process, and therefore a signal for energetic treatment This view is supported by the frequent exacerbations of the symptoms following injections of arsenical compounds On the other hand, whatever may be the explanation of these phenomena—and in my experience gastric crises are among the most resistant to treatment of all tabetic symptoms—it is difficult to regard them as evidence of an active pathological process, seeing that they may persist for years, although the disease in all other respects is quiescent and stationary The following case exemplifies this and also illustrates another curious feature of the disease—viz the beneficial effects on the course of tabes which may accrue from the development of a gummatous lesion

G K, aged 57, infected aged 23 treated with pills for a few months, no secondaries aged 36, he began to suffer from severe rectal crises which have persisted with varying intensity to the present time He was treated for fistula, fissure, dysentery, rectal bilharziasis (!) and was once threatened with an operation for carcinoma of the rectum Later he became impotent, had slight urinary incontinence, suffered from lightning pains in his legs, and rapidly lost flesh, he was then told he had phthisis

When examined, aged 49, he had Argyll Robertson pupils, absent tendon-jerks, profound sacral analgesia, and disturbance of postural sensation in feet No visceral disease W R ++ in blood, C S F W R +, globulin in excess, 18 cells per cubic millimetre He was given a course of 2 25 g of N A B intravenously, followed by mercury pills for three years, his pains diminished but the rectal crises continued, although controlled by morphia suppositories

Aged 50, blood W R —.

Aged 52, gummatous orchitis, W R blood ++, 2 5 g N A B, following which W R blood — No treatment since except morphia suppositories, without which the rectal crises are "as bad as ever"

Aged 54 to 57, cerebro-spinal fluid and blood examined twice, both negative He has put on weight and is better now in every way than he was 20 years ago, and the physical signs are unaltered

NON-SPECIFIC THERAPY

So unsatisfactory has been the response of late parenchymatous syphilis to the established methods of treatment, that we have been driven so to speak, to desperate remedies The first of these was intrathecal medication—i e, the introduction of salvarsanised sera or small doses of arsenical compounds directly into the subarachnoid space, either spinal or cerebral or both This method is now, we may hope, moribund for apart from its dangers, of which I have had several unhappy experiences, it is based on the false assumption that the cerebro-spinal fluid is a lymph bathing the nervous parenchyma The very opposite, however, is the case, since the fluid is probably a secretion of the choroid plexuses, possibly a dialysate, but certainly not a lymph and, moreover, in its relation to the brain and cord it represents the way out rather than the way in, an effluent rather than an affluent The second drastic step was the introduction of non-specific therapy, a method with which we are now becoming familiar in the shape of the malaria treatment of general paralysis The beneficial effects of intercurrent febrile disease in general paralysis of the insane have long been recognised, but no systematic attack was made along these lines until Wagner van Jauregg began inoculating paretics with Koch's tuberculin in 1887 The tuberculin was succeeded by typhoid vaccine, then by various proteins, and finally, in 1917, by the blood of patients infected with benign tertian malaria It may be too early yet to assess the true value of this method, but we must be careful not to prejudge it merely because it sounds fantastic and improbable. There can be little doubt that malaria treatment depends not on any specific effects of malarial infection as such, but rather on the general reaction of the organism to infection In fact, the choice of malaria seems to have been guided more by chance and convenience than anything else The whole question of therapeutic immunisation has recently been dealt with by McIntosh

"In therapeutic immunisation two factors are at work, a specific and a non-specific The specific is a typical antibody response, while the non-specific appears to be mainly dependent on a general stimulation of the tissues and leucocytes, in fact, to a process comparable to fever, in recent years there has been a greater tendency to make use of the valuable non-specific response"

According to a minority of investigators the results of malaria therapy in general paralysis of the insane are better if combined with antisyphilitic treatment on the assumption that the febrile process in some way "unlocks" the parasite and renders it accessible to the action of spirochæticides It is claimed for the method that remissions are more numerous and lasting, and are associated with disappearance of the parasite from the brain as confirmed by autopsy There appears to be no strict parallelism between the clinical improvement and the changes in the cerebro-spinal fluid Gerstmann has recorded 33 per cent of complete remissions out of 400 cases, many, it is true, in a very early stage of the disease, while of 209 cases treated in English institutions, nearly a quarter recovered sufficiently to permit of their being discharged According to a report by the London County Mental Hospital Service, complete remissions occurred in about one-third of the cases in a mixed series, but in a much greater proportion, if only those cases with histories of less than 18 months' standing were treated After making due allowance for the liability to long lasting remissions which may occur in untreated cases and also for the danger to life inseparable from the method it is difficult to avoid the conclusion that, *if figures mean anything*, we are no longer justified in withholding malarial therapy from any case in the earlier stages of general paresis

CONCLUSIONS

1 The introduction of salvarsan and its allied compounds in the treatment of syphilis, other than

in the Wassermann negative primary stage has not succeeded in protecting the human nervous system from syphilis, on the other hand there is no evidence that it has increased neurosyphilis

2 The influence of arsenical compounds in modifying the incidence, time of onset, and character of neurosyphilis remains to be determined

3 The pathological changes which occur in the nervous system including its coverings and in the cerebro-spinal fluid from the time of infection up to the development of late parenchymatous neurosyphilis and the mutual relations which exist between these changes are still largely a matter of conjecture

4 The value of antisyphilitic treatment in arresting the progress of tabes and allied conditions is difficult to estimate owing to their liability to undergo spontaneous arrest

5 The Wassermann reaction is not biologically specific, and its value as a guide to and indication for treatment cannot therefore, be regarded as absolute

6 The non-specific treatment of general paralysis has according to the published figures achieved better results than any previous method

7 A majority of the unsolved problems of syphilis are intimately bound up with the increasing immunity to syphilis of the civilised peoples, together with the lack of any method by which this immunity can be estimated

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Goulstonian Lectures
ON
CARDIAC DYSPNŒA.

The Second Goulstonian Lecture in 1927, delivered before the Royal College of Physicians of London on March 15th

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LECTURE II *

CARBON DIOXIDE AND HYDROGEN-ION CONCENTRATION IN THE ARTERIAL BLOOD

THE volume of carbon dioxide in the arterial blood can be measured directly The method of Van Slyke (constant volume apparatus) has been used in this series The volume of the gas is not, however, an indication of the pressure of the gas, since at a given volume the pressure will depend on the quantity of alkali available for combination with the carbon dioxide and it is the pressure that is the effective stimulant to the respiratory centre There is no satisfactory method for the direct determination of the pressure of carbon dioxide in the arterial blood and indirect methods must be utilised By determining the volumes of carbon dioxide that can be taken up by the blood at different pressures of the gas at the temperature of the body and plotting the values so obtained a carbon dioxide dissociation curve [25] is constructed The pressure on this curve that corresponds to the volume of carbon dioxide in the arterial blood as actually determined should then be the pressure of the gas in the arterial blood This curve is usually constructed from observations made with venous blood and although venous blood may give a curve accurately representing the conditions in the arterial blood in normal healthy persons it does not necessarily do so in conditions of disease Morawitz and Walker [26] and Meakins, Dautrebande and Fetter,[27] have shown that venous blood has not the same carbon dioxide combining power as arterial blood in the presence of stasis This factor is likely to be present in cases of heart failure and Fraser, Graham, and Hilton [28] showed that the dissociation curves constructed with venous and with arterial blood in cases of heart failure are not identical To obviate this fallacy the dissociation curves in this series of observations have been constructed with arterial blood It is obvious that the greater the number of points used in constructing the curve the more accurate will the curve be, and whenever possible four points have been used This requires a considerable amount of arterial blood The method of radial puncture introduced by Hurter,[25] was found to be not sufficiently reliable for obtaining the necessary amount of blood and so puncture of the femoral artery [29] has been introduced and utilised throughout these observations By this method 50 c cm of arterial blood is easily obtained The blood is oxalated and sodium fluoride is added as suggested by Lovatt Evans [30] to prevent glycolysis Even when thus constructed, the dissociation curve cannot be relied upon to give accurate values for the arterial carbon dioxide pressure partly because four points are not sufficient if any one of them happens to lie a little off the curve of the other three, and partly because the changes undergone in blood from cases of diseased states when drawn and reheated in tonometers has not been sufficiently investigated A second and additional method has therefore been employed in most of the cases The pH of the arterial blood and of the samples of blood from the tonometers has been determined directly by the Hastings-Sendroy [31] colorimetric method In this way the pH of the blood at different carbon dioxide pressures has been determined The pH-carbon-dioxide-pressure curve has been constructed from them and the pressure corresponding to the pH of the arterial blood found from the curve Any alteration in the acid-base relationship of the blood after withdrawal from the body would result in changes in opposite directions in the values of the arterial carbon dioxide pressure obtained by the two methods Thus if the blood became more acid after withdrawal, the value obtained by the dissociation curve would be too high and that by the pH-pressure curve too low It is probable that the figure obtained from the dissociation curve is the more accurate since the carbon dioxide volume can be determined with much greater accuracy than can the pH by the methods employed. By considering the figures so obtained an approximate value for the arterial carbon dioxide pressure is arrived at, and the figure obtained from the dissociation curve has been regarded as the more reliable of the two When there has been a pronounced discrepancy between the figures obtained by the two methods the results have been discarded

CASES WITH MITRAL STENOSIS AND AURICULAR FIBRILLATION.

The results in the group of cases with mitral stenosis and auricular fibrillation are shown in Table V. In accordance with the practice of other observers, the amount of alkali available for combination with carbon dioxide, or the level of the dissociation curve, has been indicated by giving the carbon dioxide capacity of the blood at a pressure of 40 mm. of Hg. This figure is obtained from the dissociation curve, and will be accurate only in so far as the curve can represent truly the condition of the arterial blood.

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* Lecture I appeared in THE LANCET last week

TABLE V.

Carbon dioxide content and pressure, and hydrogen-ion concentration of arterial blood in same cases as in Table II.

Case No.	Date	Dyspnœa	Arterial blood					
			CO_2 content	CO_2 capacity at 40 mm Hg	CO_2 pressure		pH	
					From dissociation curve	From pH pressure curve	Colorimetric	Calculated
			V%	V%	mm	mm		
1	15/12/24	+	42·2	44	36	30	7·48	7·36
2	22/12/24	+ +	42·9	46	31	26	7·47	7·43
	12/ 1/25	–	55·6	59	33	31	7·33	7·52
3	18/ 6/23	+ +	35·7	44	26	–	–	7·44
	25/ 6/23	+	42·0	43	38	–	–	7·34
	9/ 7/23	+ +	41·4	46	32	–	–	7·41
	4/ 1/25	+ + +	33·6	45	21	17	7·46	7·50
	19/ 1/25	+	43·4	50	29	29	7·34	7·47
4	9/11/25	+ +	41·4	46	28	31	7·44	7·46
	7/12/25	+	43·2	47	32	31	7·37	7·42
	13/ 4/26	+ +	39·9	42	35	35	7·36	7·34
5	25/ 1/26	+ +	55·2	53	47	42	7·40	7·35
	8/ 2/26	+ +	56·0	52	48	42	7·33	7·35
6	8/12/24	Sl	51·4	48	45	42	7·38	7·33
7	23/ 4/23	+	40·0	38	43	–	–	7·26
8	16/ 6/24	+	40·8	42	39	–	–	7·32

V% = Volumes per cent

In health the limits of variation of the arterial carbon dioxide volume are wide. Harrop[16] found figures ranging from 44·6 to 52·9 volumes per cent. in ten healthy individuals. The amount of alkali available for combination with carbon dioxide as indicated by the carbon dioxide content at 40 mm. of Hg pressure, also varies greatly, and Peters, Barr, and Rule[32] conclude from their own observations and those of others that variations from 43·3 to 55·9 volumes per cent. with an average of 49·3 may occur in healthy subjects, though it is more constant than this in any one individual. The variations in arterial carbon dioxide pressure in health have been arrived at mainly by determination of the pressure in the alveolar air, which in health is almost identical with that of the arterial blood. Figures varying from 35·0 to 40·8 mm. of Hg have been published,[32] but this method of determination is not available in diseased conditions and in cases of dyspnœa. Figures obtained from carbon dioxide dissociation curves have been published and show wider variations than these, but the dissociation curves were constructed from observations on venous blood. It is obvious, then, that much caution must be used in concluding that the figures for arterial carbon dioxide volume and pressure and capacity are indicative of significant departures from the normal in any single observation. Changes from one observation to another in the same individual under resting conditions will, however, be of greater significance.

The figures for the carbon dioxide content, as shown in Table V., are in general about the lower limit of the normal with certain obvious exceptions. In Case 3 the figures are clearly below normal limits on the first and fourth observations when the dyspnœa was particularly severe. In Case 2, while the figure obtained when the dyspnœa was present is at the lower limit of the normal, it is above the upper limit on the second observation when no dyspnœa was present. The one observation on Case 6 gives a figure near the upper limit of the normal at a time when the patient had greatly improved and only slight dyspnœa was present. Both observations on Case 5 gave values distinctly above the normal limits, and this is the case with low figures for oxygen saturation. In Cases 2, 3, and 4, in which two or more observations were made, it is seen that the figure is in each instance lower at the time of greater respiratory distress.

The values for the carbon dioxide capacity of the blood, as indicated by the volume at 40 mm. pressure, fall in general within the normal limits. Cases 7 and 8, and the third observation in Case 4, gave figures that are lower than the accepted normal or about the lower limit of the normal. At the second observation in Case 2 the capacity was definitely above the normal range, and in Case 5 the capacity was a high normal on both occasions.

The carbon dioxide pressures by either method are lower than the accepted normal values in Cases 2, 3, and 4, are within normal limits in Cases 1 and 8, and above the normal in Cases 5, 6, and 7. Cases 2, 3, and 4 are examples of severe cardiac dyspnœa uncomplicated by primary lung disease and in young subjects, so that the complications of arterial disease, renal insufficiency, emphysema, &c., are not likely to be present. In Cases 1 and 6 the dyspnœa was slight, and the patients had recovered considerably from the attacks of heart failure when the observations were made. Case 5 had evidence of pulmonary complications, and inefficient gaseous exchange in the lungs was demonstrated by the oxygen unsaturation of the arterial blood. In Cases 7 and 8 the patients are much older than the others of this group. In Cases 2, 3, and 4 several observations were made in states of severe dyspnœa and more pronounced failure, and in states of partial recovery. In Case 3 the second observation was made during recovery from the condition present at the time of the first observation, and the third during a slight relapse from overdosage with digitalis. The fourth observation was made during a subsequent admission to hospital because of a severe recurrence of the heart failure, and the fifth observation during partial recovery from this. The carbon dioxide pressures are lowest when the dyspnœa is most severe, and in each case the values rise towards or to normal in the recovery stage. In the two observations on Case 2 the pressure is higher in the recovered state. In Case 4 there are three observations. At the time of the first the dyspnœa and failure were severe, at the time of the second there was considerable recovery and the pressure is slightly higher. The third observation was made during a later admission to hospital when the patient's condition was much worse. The dyspnœa was severe and, notwithstanding this, the carbon dioxide pressure is within normal limits, suggesting that there was some impairment of the carbon dioxide exchange in the lungs. This patient died shortly after the observation was made, and the conditions were, therefore, not comparable to those present at the time of the earlier observations. If this one observation be omitted, the results in these three cases (2, 3, and 4) point to an association of a low arterial carbon dioxide content and pressure with severe dyspnœa, and to a lessening in the severity of the dyspnœa being accompanied by a rise in the carbon dioxide volume and of the carbon dioxide pressure. The carbon dioxide capacity of the arterial blood, although never below the limits of the normal, shows a similar if small rise with the rise of pressure and of volume that occur with recovery. The second observation on Case 2 shows a high figure for carbon dioxide capacity and a pronounced rise on recovery. The reason for this exceptionally high figure and the exceptional rise is not obvious. In the other observations on these cases the results are such as might be expected as a consequence of a low carbon dioxide pressure in the alveolar air from increased ventilation. Such a low alveolar pressure would result in a low arterial pressure and a low volume, and a readjustment of base would then take place, as Henderson and Haggard[13] have shown, with a lowering of the amount of base available for combination with carbon dioxide—that is, a lowering of the carbon dioxide capacity. If a similar mechanism is present in the other cases also some other factor must be present to account for the different results in them.

In Case 5 the arterial carbon dioxide pressures are above the normal range, in spite of the severe dyspnœa and respiratory efforts. This points, in the absence of any signs of obstruction to the air passages, to a faulty exchange between the gases of the alveolar spaces and the blood or to insufficient ventilation of the alveolar spaces. Such an explanation is supported by the low oxygen saturation in the arterial blood. It will be noted that the carbon dioxide capacity is also high, as a result of the expected readjustment of base. In Case 6, in which the dyspnœa was but slight, a high carbon dioxide pressure is present, but the oxygen saturation is good. This could only be accounted for if there could be a degree of faulty exchange or ventilation sufficient to effect the efficient exchange of carbon dioxide, but not sufficient to affect the saturation of the blood with oxygen. That such a situation can arise is supported by the experimental work of Blalock, Harrison, and Wilson,[33] who found that in healthy lungs obstruction to ventilation may result in a rise of the carbon dioxide in the arterial blood *before anoxæmia, as indicated* by the oxygen saturation, is produced. As they point out, this is contrary to the conclusions of Hastings, Neill, Morgan, and Binger,[34] who based their findings on work on pneumonia. The same situation is present in Case 7, but in this case the dyspnœa was severe, the respiratory effort apparently keeping the ventilation sufficient to prevent anoxæmia, but not to maintain an efficient carbon dioxide exchange. In Cases 1 and 8, and on the third observation in Case 4, the carbon dioxide pressures are at high normal levels in spite of the pronounced respiratory efforts, and the same explanation will account for the difference between the results in them and in Cases 2 and 3, and the earlier observations in Case 4, in which the exaggerated respiratory efforts were accompanied by low arterial *carbon dioxide pressures*. The method of estimating the oxygen in the blood in terms of saturation is not entirely satisfactory. The pressure of the gas is the essential factor, and it is possible that the apparent discrepancies between oxygen and carbon dioxide exchanges would disappear if oxygen pressures were estimated throughout.

While Cases 5 and 6 illustrate the raised carbon dioxide capacities in the presence of high arterial carbon dioxide pressures, Case 7 had the lowest capacity in the series in spite of a pressure above the normal limits. This patient was aged 59, his arteries were thickened, and there were numerous granular casts in the urine, and the low capacity may be accounted for by an *inability to readjust* base owing to renal and other changes accompanying age and arterio-sclerosis. A similar inefficiency of readjustment, though less in degree, is seen in Case 8, aged 67, and in the third observation in Case 4 shortly before the patient died.

In this group of cases, therefore, we find that in the study of individual cases lower carbon dioxide pressures are found in arterial blood the more severe the dyspnœa, but that in some cases severe dyspnœa is accompanied by high pressures. It is *clear*, therefore, that this type of dyspnœa cannot in general be due to high carbon dioxide pressure in the blood supplied to the centre. The results are understandable however if there is some factor other than low arterial oxygen saturation or high arterial carbon dioxide pressure stimulating the *centre to cause* hyperpnœa. This hyperpnœa would then result in low arterial carbon dioxide pressures in the cases with free pulmonary ventilation and efficient gaseous exchange between alveolar air and blood but might not be sufficient to lower the carbon dioxide pressure or to prevent a raised pressure in those cases *in which* pulmonary ventilation is obstructed or gaseous exchange with the blood inefficient. The congestion of the lungs and the œdema consequent on the heart failure are obvious possible causes for hampered ventilation and inefficient gaseous exchange.

Because of the retention of fixed acids, a raised hydrogen-ion concentration in the blood supplied to the centre is present in diabetic coma and in uræmia, and it is probably the cause of the hyperpnœa seen in these conditions.[35] In uræmia we have found low arterial carbon dioxide pressure, content, and capacity associated with normal oxygen saturation. The determination of the hydrogen-ion concentration of the arterial blood in cardiac dyspnœa is, therefore, of importance, since in it we find low carbon dioxide values and normal oxygen saturation. For convenience the logarithmic *expression—the pH of* Sörensen—has been utilised, and this has been determined for the whole blood in two ways. It has been calculated from the carbon dioxide volumes and pressures by the Hasselbalch formula according to the method of Van Slyke, Hastings, Murray, and Sendroy,[36] and it has been determined directly by the colorimetric method of *Hastings and Sendroy*.[31] The calculated values depend for their accuracy on the accuracy of the carbon dioxide dissociation curves, and will fail to represent the true arterial conditions in so far as these curves fail to do so. The direct determinations by the colorimetric method agree very closely in conditions of health with the values obtained by the *hydrogen electrode, but* considerable discrepancies have been reported in diseased conditions, and until the causes of these discrepancies are understood the calculated values are more reliable, although the colorimetric readings have the advantage of being independent of the determination of carbon dioxide contents or dissociation curves by means of which *the calculated* values are obtained. It is difficult to place the limits of the normal variations in arterial pH, and Austin[37] gives them as 7·30–7·50, though the variations in any one individual are almost certainly less than this. A study of the figures in Table V. shows that with only two exceptions the values all fall within these normal limits. The calculated pH on the *second* observation in Case 2, when the carbon dioxide capacity rose to an exceptional degree, is 7·52, which is more alkaline than the normal variations permit, but the colorimetric determination in the arterial blood is 7·33. In Case 7 the calculated value is 7·26, which is outside the limits on the acid side. Although the other values lie within the accepted limits, they are near the alkaline limits at the time of severe dyspnœa in Cases 2, 3, and 4, and are less alkaline in general on *improvement*. The values are near the acid limits in Cases 6 and 8. In Cases 6 and 8 the unusually high carbon dioxide pressures in the arterial *blood* are just compensated by the *readjustment* of base to avoid abnormal hydrogen-ion concentrations, but in Case 7, with pronounced arterio-sclerosis and renal changes, this compensation has failed. It is of importance to note that in Case 5 the carbon dioxide pressures are the highest in this group of cases, but high carbon dioxide capacity keeps the pH easily within normal limits. In Cases 1, 2, 3, and 4, with low carbon dioxide pressures, compensation by readjustment *of base and lowering* of carbon dioxide capacity is successful in keeping the pH within the limits of the normal on the alkaline side. This group of cases, therefore, shows that so far from severe cardiac dyspnœa being accompanied by increased hydrogen-ion concentration in the arterial blood, normal values are the rule, and there may be a lowering of the hydrogen-ion concentration *to the alkaline* limits of the normal with a rise later as the severity of the dyspnœa diminishes.

CASES WITH HIGH BLOOD PRESSURE AND ARTERIAL DISEASE.

The results of the *observations* on the carbon dioxide and hydrogen-ion concentration in the second group of cases are recorded in Table VI. This group consists of the six patients who had dyspnœa and heart failure with high blood pressure and arterial disease but no evidence of endocarditis. The volume of carbon dioxide *in the arterial* blood is below the limits of the normal variation in four (10, 11, 12, and

14) of the six cases, and about the lower limit in Case 9 The second observation on Case 13 is the only figure well inside the normal limits, and this is the case in this group that showed the low oxygen saturation of 87 8 per cent. (see Table II) In the second observation on Case 10 the volume of carbon dioxide is only 27·6 per cent, the lowest in the whole series, but this observation was made a few hours before the death of the patient The carbon dioxide capacity is, in general, within the accepted limits of the normal, except at the second observation on Case 10 just before the death of the patient, and at the first observation on Case 13, when the failure was extreme In these instances the figures are too low, presumably from faulty elimination of fixed acids In Case 13 the capacity rose as the general condition of the patient improved, As in the group of cases with mitral stenosis, the carbon dioxide pressures in the arterial blood are generally below the normal values Case 13 is the one exception, for at the two earlier observations the pressures are markedly high, and at the third, when the patient was greatly improved, the pressure had come down to a normal value The low oxygen saturation (see Table II) and high carbon dioxide pressures in this case are exceptional, and point to an inefficient gaseous exchange from œdema of lung tissue This prevents the effect of the hyperpnœa on the arterial blood which is observable in the other cases The hyperpnœa in the other cases must be the result of some respiratory stimulus other than low saturation or high carbon dioxide pressure in the arterial blood, and it causes in this group of cases, as in the group with mitral stenosis a washing out of carbon dioxide from the lungs with low figures for arterial carbon dioxide pressure, capacity, and volume That the respiratory stimulus is not increased hydrogen-ion concentration is seen on examining the figures for the pH in Table VI, for they fall within the normal limits with three exceptions On the second observation on Case 10, shortly before the patient's death, the calculated pH is too acid, and on the first observation in Case 13, when the failure was extreme and the arterial carbon dioxide pressure high, the value is outside the normal to the acid side, and with recovery more alkaline values were obtained In Case 11 the calculated pH is outside the normal range on the alkaline side In Cases 9 and 12 the hydrogen-ion concentrations are in the alkaline half of the normal range In this group, therefore, as in the group of mitral stenosis cases, there is no indication of retention of acid bodies as the cause of the dyspnœa except in the patient with extreme failure and faulty exchange of gases in the lungs, and in the observation of Case 10 a few hours before the death of the patient

TABLE VI

Carbon dioxide content and pressure, and hydrogen-ion concentration of arterial blood in same cases as in Table III

Case No.	Date	Dyspnœa	Arterial blood					
			Co₂ content	Co₂ capacity at 10 mm Hg	Co₂ pressure		pH	
					From dissociation curve	From pH pressure curve	Colorimetric	Calculated
9	28/ 9/25	+	43 7	49	31	29	7 38	7 44
	31/11/25	+ +	44 0	49	31	30	7 45	7 44
10	24/11/24	+	38 8	43	33	31	7 31	7 36
	1/12/24	+	27 6	31	27	27	7 34	7 29
11	5/10/25	+	39 2	48	24	24	7 43	7 52
12	11/ 2/24	+P	39 9	44	30	—	—	7 42
	25/ 2/24	+Sl p	37 1	43	29	—	—	7 41
	17/ 3/24	Sl	38 8	45	28	—	—	7 44
13	28/ 1/24	+ + +	45 1	42	48	—	—	7 26
	3/ 3/24	+ +	51 8	46	51	—	—	7 31
	31/ 3/24	+	44 0	46	36	—	—	7 39
14	21/ 6/26	+	39 0	43	32	35	7 37	7 36

Sl p = Slightly periodic

CASES WITH PULMONARY DISEASE IN ADDITION TO HEART FAILURE.

The results in the three cases with pulmonary disease and the two unclassified cases are shown in Table VII The volumes of carbon dioxide in the arterial blood are all high, either around the upper limit of the normal or definitely above as in Case 17, and the first observation in Case 15 The carbon dioxide capacities are higher than in the other groups, and in Case 17 it is definitely above the limits of normal variation The carbon dioxide pressures are around the upper limit of the normal in Cases 18 and 19, and markedly above the normal in all the other observations, with the exception of the second observation on Case 15 In Case 17 and in the third observation on Case 15 the pressures could not be determined with any accuracy, as the arterial point lay beyond the ascertained range of the dissociation curve, and could only be arrived at by extrapolation That the pressures were abnormally high is, however, undoubted At the second observation on Case 15, when the figures for the pressure were below the normal range, the patient's condition was greatly improved, and he was quite free from signs of bronchial spasm which were present at the other observations, though orthopnœa and signs of heart failure were still evident This group is characterised, then by high carbon dioxide pressure in the arterial blood, with normal or high capacity and high carbon dioxide volumes This high carbon dioxide pressure in the presence of dyspnœa is accountable on the pulmonary lesions present in Cases 15, 16, and 17 In Case 18 it may be due to the holding of the breath that was noticeable in the presence of the paroxysms of pain of angina pectoris In Case 19 the general feebleness of the patient with carcinoma of the uterus might conceivably account for it The low pressure at the second observation in Case 15 would appear to indicate that in the absence of the bronchial spasm this case is essentially the same in the mechanism of the dyspnœa as the cases in the other groups, and it is probable that in so far as the cardiac dyspnœa is concerned there is a mechanism common to all the cases, though the evidence of it may be obscured in some by such complicating factors as pulmonary disease

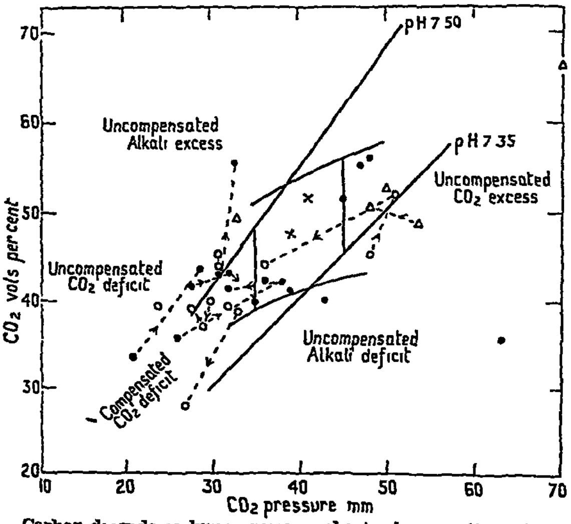
TABLE VII

Carbon dioxide content and pressure, and hydrogen ion concentration in same cases as in Table IV

Case No	Date	Dyspnœa	Arterial blood					
			Co₂ content	Co₂ capacity at 10 mm Hg	Co₂ pressure		pH	
					From dissociation curve	From pH pressure curve	Colorimetric	Calculated
15	15/ 6/25	+ +	57 8	–	–	–	–	–
	29/ 6/25	+	49 6	53	33	28	7 33	7 48
	15/ 2/26	+ + +	47 8	44	54*	40	7 42	7 23*
	22/ 2/26	+	50 5	47	48	41	7 40	7 27
16	7/ 6/26	+	52 4	48	50	–	7 42	7 30
17	19/10/25	+ +	66 9	59	70*	–	7 37	7 26*
18	18/ 1/26	+	47 3	48	39	34	7 35	7 37
19	12/10/25	Sl	51 4	51	41	39	7 42	7 38

* Figures uncertain since that for CO_2 pressure was obtained by extrapolation

In view of the high carbon dioxide pressure it is not surprising to find hydrogen-ion concentrations as indicated by the calculated pH, that are abnormally high in Cases 15, 16, and 17 In Cases 18 and 19 values in the acid half of the normal range were found, and at the second observation on Case 15 a concentration towards the alkaline limit of the normal It is seen that in this group the colorimetric pH values differ considerably from the calculated and all lie within the normal range It is not possible to say which are the more accurate, in view of the profound disturbance of the acid base balance that is present, but the calculated values cannot be so accurate in these cases as in the others, because of the extreme position of the arterial points in the dissociation curves In the presence of the high carbon dioxide volumes and pressures in the arterial blood, the existence of a gaseous acidosis can be accepted



Carbon dioxide volume-pressure chart, showing the arterial points in Cases 1–19 The continuous lines enclose the normal area

● Cases 1–8 ○ Cases 9–14 △ Cases 15–17 × Cases 18 and 19

The arterial points for the 19 cases of the three groups have been placed on a carbon dioxide volume-pressure chart The area of normality, adapted from the chart of Hastings, Neill, Morgan, and Binger,[34] is shown, and it is seen that most of the arterial points are grouped in the areas representing compensated and uncompensated carbon dioxide deficit The points from the cases with pulmonary disease in addition to heart failure and from Case 13 lie towards or in the area of uncompensated carbon dioxide excess, those from Case 7 and the second observation in Case 10 are in the area of uncompensated alkali deficit, and that from the second observation on Case 2 in the area of uncompensated alkali excess The chart shows well that unless other factors are present in addition to heart failure, and so long as pulmonary congestion is not extreme, cardiac dyspnœa is accompanied by a condition in the arterial blood indicative of compensated or uncompensated carbon dioxide deficit, which is presumably the result of increased pulmonary ventilation

CONCLUSIONS ON CARBON DIOXIDE AND HYDROGEN-ION CONCENTRATION IN ARTERIAL BLOOD

The study of arterial blood in these 19 cases of cardiac dyspnœa permits of the conclusions that (*a*) in cases of extreme congestive failure and of pulmonary disease in addition to heart failure, faulty elimination of carbon dioxide and faulty absorption of oxygen in the lungs may be factors in the production of increased respiratory activity, and (*b*) in cases near death, retention of fixed acids, and raised hydrogen-ion concentration may be factors in the production of increased respiratory activity, but that (*c*) in cases of cardiac dyspnœa other than these the condition of the arterial blood cannot account for the dyspnœa, and is, indeed indicative of the presence of increased pulmonary ventilation to which the changes in the arterial blood are secondary. Since the changes in the arterial blood due to the conditions (*a*) and (*b*) would mask the effect of such increased ventilation, it is reasonable to suppose that there is a cause of increased respiratory activity present in all cases of heart failure, which is independent of the quality of the blood supplied to the respiratory centre

(The bibliography, to which references are given in this lecture, will appear with the third lecture)

THE CHLORIDES OF GASTRIC CONTENTS

IN RELATION TO FREE ACIDITY

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SINCE the publication by Ryle in 1920[6] the fractional method of gastric analysis as described by Rehfus and Hawk has found wide application in clinical work in this country, and much information is now available about the range of variation of gastric acidity in health and disease

Although it has long been accepted that the total *chloride content is the more accurate* index of the secretory activity of the stomach, records of such estimations by the fractional technique are relatively few, the most important being those of Bolton and Goodhart[3] These writers based their observations on 70 cases, and accepted the opinion of Boldyreff that the balance of muscle tone between the stomach and the pylorus is a most important factor in defining the degree of gastric acidity One of the results of the action of the pyloric sphincter is the control of the regurgitation of alkaline fluids to the stomach from the duodenum Bolton and Goodhart confirm the view that the total chlorides are a more accurate index of secretory activity and that the inorganic chlorides are a fair index of the degree of access of alkali to the stomach, mainly from the duodenum In 1924 Baird, Campbell, and Hern[1] published results of chloride estimations in fractional samples, and, on the evidence of simultaneous withdrawal of duodenal and gastric contents after test-meals, conclude that production of alkaline secretions by the stomach itself is at least as important a factor in control of gastric acidity as regurgitation of pancreatic and duodenal contents These writers also describe a method by which the estimation and calculation of the chlorides become practicable for routine clinical work

Our routine has been to estimate the chlorides in all fractional gastric analyses This communication is a survey of such estimations in 22 cases of Addison's anæmia and in 292 unselected cases of other diseases The technique for the test-meal is that outlined by Ryle[6] In approximately half of the cases examined by us the chlorides have been estimated by the complete Volhard method by fusion with and without alkali, and in the other half by the shorter and simpler method described by Baird, Campbell, and Hern the accuracy of which for clinical purposes we have confirmed Defining a unit of free acidity against Topfer's reagent or of chlorides as the equivalent of 1 c cm of N/10 HCl per 100 c cm of gastric contents, we have grouped our cases as follows —

1 Achlorhydria Free HCl absent in the resting stomach and throughout the test.
2 Hypoacidity Free HCl not greater than 10 units at any time after the administration of the meal
3 Normal acidity Free HCl greater than 10 units but not greater than 50 units after the meal
4 Hyperacidity · Free HCl greater than 50 units at some time after the meal

The following table shows the incidence of these groups of free acidity within the series, as well as the number of estimations of chlorides carried out at the various intervals of time in the course of digestion and passage of the meal.

The chlorides of the meal itself have been estimated repeatedly and found to vary from zero to 5 units, a negligible quantity in the interpretation of results Saliva expectorated during the test has been examined in 25 cases, in no case was free HCl present The total acidity to phenolphthalein varied from 0 to 10 units, the average being 5 units and the total chlorides from 10 to 55 units, the average being 20 units Allowance must therefore be made in considering the total chlorides of the fasting contents of the *stomach, which naturally may include an* appreciable amount of saliva This also emphasises the importance of taking precautions to exclude the swallowing of saliva after administration of a test-meal if the chlorides are to be estimated.

A = Achlorhydria (Addison's anæmia) B = Achlorhydria (other diseases) C = Hypoacidity D = Normal acidity E = Hyperacidity

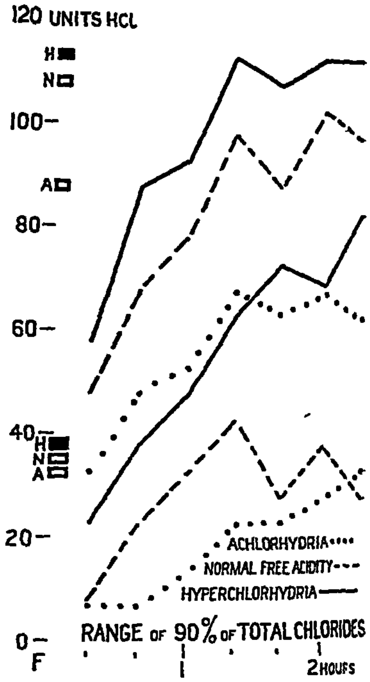
—	No of cases	Number of analyses									
		Hours after meal									
		0	⅓	⅔	1	1⅓	1⅔	2	2⅓	2⅔	3
A	22	16	18	16	7	7	5	4	2	2	
B	56	42	38	25	29	18	22	7	10		4
C	19	10	11	8	9	6	4	5	3		
D	181	113	113	70	107	62	72	39	26	11	9
E	36	21	23	12	23	9	17	4	6		
Total	314	202	203	131	175	102	120	59	47	13	13

The results of the estimations of chlorides indicated in the above table are expressed in two schemes of diagrams *(1) mean curves, representing the average figures at stated periods of time of digestion* (Figs 1 and 2), (2) curves defining the limits of 90 per cent. of the results (Figs 3 and 4) There is obvious general conformity in the shape of the average curves of total chlorides in all groups The total chlorides tend to return to the level of the resting contents of the stomach

The height of the curve of total chlorides places the various groups in an order of magnitude corresponding with the degree of free acidity (Fig 1) The appreciably high level of the total chloride curve in Addison's anæmia and other cases of achlorhydria shows that even in this group the secretion of HCl is appreciable but neutralised by alkali This fact is also demonstrated in Fig. 3 where the range of total chlorides in achlorhydria of other diseases than Addison's anæmia is seen to fall mainly within that for the group of normal free acidity, and even includes a portion of the zone covered by cases of hyperacidity The average curves and the range of 90 per cent *of the inorganic* chlorides in the various groups of acidity show only slight divergence, evidence that the absence of free HCl is most often due to access to the stomach of alkaline secretions, neutralising what may be potentially an appreciable degree of free acidity.

In all groups excepting that of hyperacidity the average curves of inorganic chlorides are broadly similar in shape to those of total chlorides, though at a lower level (Figs. 1 and 2), there is in both total and inorganic chlorides a rise in the curve within 40 minutes of taking the meal, and a tendency to return to the level of the fasting contents The former feature suggests that some secretion of alkali by the stomach is excited in almost immediate response to the meal Bennett and Dodds[2] demonstrated a correspondence between the curves of free acidity in the stomach and those of the pressure of CO_2 in alveolar air, and their published records provide some evidence that some output of alkali from the circulation commences about the same time as the arrival of food in the stomach In the case of hyperacidity the curve of inorganic chlorides remains almost horizontal at a distinctly low level up to two hours; there is a tendency to rise after two hours, but to a level appreciably less than in other groups This fact suggests that the secretion of alkali by the

FIG 3



AVERAGE CHLORIDES

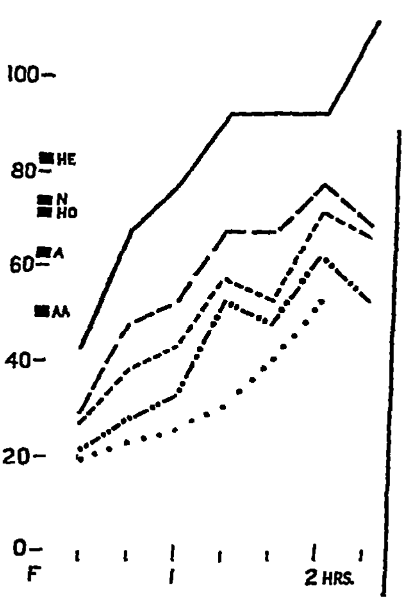


FIG 1.
Total chlorides

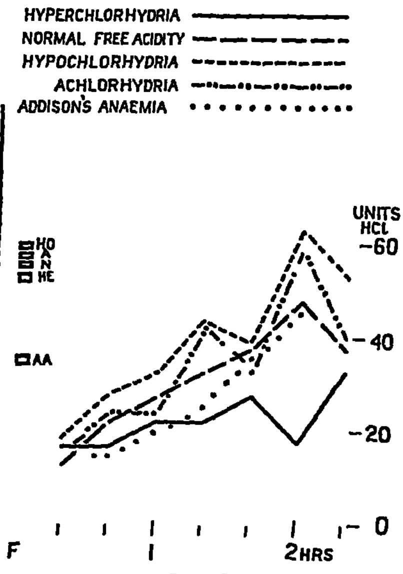
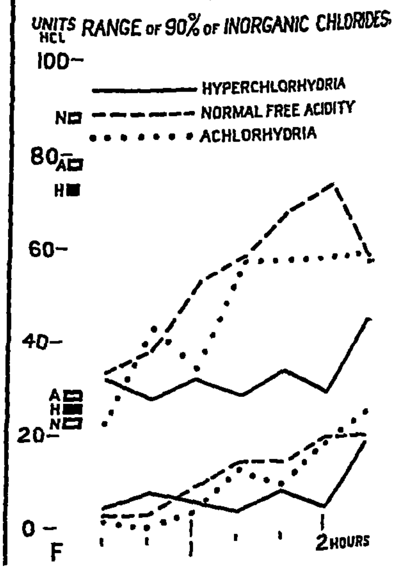


FIG 2.
Inorganic chlorides

FIG 4



stomach is markedly deficient or delayed in this group.

Figs. 1 and 2 show clearly the association between deficient alkaline secretions and hyperacidity. The same point is brought out in Figs. 3 and 4, where a considerable proportion of cases with a normal range of free acidity are seen to have a range of total chlorides as high as many cases of hyperacidity, whereas the inorganic chlorides in cases of normal acidity are very much higher than those of hyperacidity.

The total and inorganic chlorides of the fasting contents of the stomach have a remarkably constant average in all groups of free acidity, the widest divergence being found in Addison's anæmia. In Addison's anæmia it is interesting to note the similarity of the shape of the average curve of the chlorides to that of other groups, the difference being only that of reduction in magnitude. The range of variation of the total chloride curves in Addison's anæmia falls within the zone of the curves of 90 per cent. of the cases of achlorhydria in other diseases. On the *basis of the figures for the total chlorides* there is no indication of any possible definition of so-called achylia as distinct from achlorhydria. The feature of the results of fractional test-meals in cases of Addison's anæmia is the rapid disappearance of *starch from the stomach.* In 16 (66 per cent.) of the 24 test-meals in cases of Addison's anæmia starch had disappeared from the fractional samples in one hour. In the cases of achlorhydria other than Addison's anæmia the proportion empty in one hour is 35 per cent. In the few fractional samples available in cases of Addison's anæmia after one hour the chlorides tend to rise, but at a slightly lower level than other cases of achlorhydria, an indication that a certain amount of HCl is secreted, but neutralised by alkali and absorbed by protein.

Summary.

1. The mean curves of total chlorides in all grades of gastric acidity are similar in shape, differing only in magnitude. 2. The mean curves of the inorganic chlorides have the same general form and relation to time of digestion as those of the total chlorides, but agree much more closely in magnitude. In hyperchlorhydria the inorganic chlorides tend to remain low or rise only very *slightly.* 3. On the basis of the figures of the chlorides there seems to be no clear definition of the so-called achylia of Addison's anæmia, as distinct from other cases of achlorhydria.

We wish to express our thanks to the honorary physicians of the Royal Bath Hospital for the use of their notes and permission to examine the cases: also to S. Linfoot for his technical assistance.

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5 Dodds, E. C.: Jour. Physiology, 1921, liv, 342.
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BRIGHTON AND HOVE PROVIDENT DENTAL HOSPITAL.—At the annual meeting on Feb. 25th it was decided to convert the hospital into a corporate body by registering it as a company with limited liability without the addition of the word "limited" to its name. The decision was unanimous, and the licence of the Board of Trade is to be sought. It was explained that the hospital had now a fairly large amount of invested funds which were in the hands of trustees, but it was felt that an institution of that kind should be master of its own funds and that it should be an incorporated body, having a definite legal status not dependent on cumbersome and obsolete trusts, and protecting its members from financial liabilities beyond those laid down. The annual report showed a decrease of 435 patients during the year; this was explained as due to the fact that the State, through the approved societies, was now providing dental benefit, formerly only available through charity.

POST-PARTUM AVULSION OF THE UTERUS:

A CASE OF RECOVERY.

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With Remarks by

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OBSTETRIC PHYSICIAN TO ST. THOMAS'S HOSPITAL.

THE following case is of interest as it reveals how completely a woman may recover from the effects of so serious a disaster as the tearing out of the whole uterus after delivery.

On July 7th, 1926, a letter was received at St. Thomas's Hospital from a practitioner asking for the admission of a patient, a multipara, aged 30, who had been delivered of her fifth child three days previously. The four previous confinements had been normal except the last, in which the placenta was removed manually. In addition there had been two miscarriages.

The medical man had apparently been called in when labour was well advanced. He found a breech presentation. The membrane ruptured early and a full-time living child *stated to be 12 lb.* in weight, was born after a normal labour of 18 hours. There was some delay in the birth of the placenta and when it did come (to quote the doctor's letter) "the uterus, placenta, and a tumour were so inextricably mixed up and the neck of the uterus so friable, that I removed them all." Unfortunately this unusual specimen was thrown on the fire and so destroyed. The method of removing the mass was to cut through such attachments as remained with scissors. It was on the third day after delivery that the doctor made his request for the admission of the patient, which was arranged for at once.

On examination after admission the temperature was 99° F., *the pulse-rate 120, and the* respirations 24 per minute. The patient looked extremely pale and feeble. She did not complain of great pain, but had a certain amount of abdominal discomfort together with severe *thirst.* The abdomen was slightly distended in the lower part and tender, and no uterus was palpable. There was a blood-stained discharge, not much more in amount *than the normal* lochia, and not offensive.

As there was no hæmorrhage and it was three days since delivery, *the patient was merely* given a sedative and propped up in bed. On the following day she had a much more anxious appearance and complained of abdominal pain. *The temperature* was 98°. A constant flow of bright blood per vaginam, accompanied by a rise in the pulse-rate, indicated the need for further investigation. An anæsthetic was given and examination by speculum made with the patient in the lithotomy position. At the top of the vagina was a ragged hole, which was gently explored when coils of gut were made out lying above. On the right of the tear was a piece of decomposing muscular tissue about 1 inch square, apparently all that remained of the uterus. From its attachment to the vagina it was thought to be the remains of the cervix and was removed for microscopy. The report returned was that it showed necrosis of tissue with enormous dilatation of vessels and extreme congestion, but that its histological structure could not be determined (Prof. L. S. Dudgeon). *The hole in the vault and* the vagina were lightly plugged with gauze wrung out of 1 in 1000 formalin solution and the patient put back to bed. *There was no further bleeding and the plug* was removed four days later. The patient was discharged on July 30th, having made an uneventful recovery.

She was seen again on Nov. 12th and found perfectly well and able to do her work. There was no pain or tenderness in the abdomen and no trouble with the bowels. There was no discharge, and on vaginal examination the tear was found to have healed up leaving a puckered scar in the vault.

Discussion.

It is unfortunate that the specimen as removed was not available for examination, as it would have been interesting to have been able to give a description of the "tumour." Probably there was complete inversion of the uterus with extensive laceration of the vagina, so that traction on the placenta while it still attached to the uterus would result in further tearing and separation of that organ from its surrounding structures The removal would then be completed by the scissors as described by the practitioner

The most striking feature is the absence of serious and rapidly fatal hæmorrhage in consequence of the tearing of the vessels, the retraction of which would be readily permitted by the loose nature of the pelvic cellular tissue which is characteristic of late pregnancy The low blood pressure resulting from the shock of the avulsion might be a contributory factor

Apart from early death from hæmorrhage or shock (or the two together), the other danger is that of the development of general peritonitis The risk is not, however, as great as might be thought, for the state of affairs differs little from that in vaginal hysterectomy, such as used to be performed for uterine cancer with its foul ulcerating surface General peritonitis was a rare complication of vaginal hysterectomy for cancer, although the chances of infection were much greater. In this case there probably was nothing more than a slight pelvic peritonitis—the signs of which decided the practitioner in charge to ask for the patient's admission to hospital All that was found on examination was slight distension and tenderness of the lower part of the abdomen In the absence of any indications for interference, the patient was merely propped up in the Fowler position, and had it not been for the bleeding that began on the following day nothing further would have been done The fresh hæmorrhage made thorough investigation necessary Only slight oozing was discovered which was readily controlled by a gauze plug

Remarks by DR JOHN S FAIRBAIRN.

The chief interest in cases of avulsion of the uterus after labour is a forensic one, because rare though they are, sufficient numbers are recorded in medical literature to show that the disaster may occur without evidence of undue force being used or of anything that necessarily involves criminal negligence

There are two papers easy of access in which details of other cases may be referred to The first is by the late Mr J Hopkins Walters, of Reading on Post-partum Avulsion of the Uterus, with a case, followed by Recovery,[1] and the other is by Dr Herbert R Spencer on Rupture and Avulsion of the Uterus at the Time of Labour,[2] in which seven cases of recovery without operation are recorded The latter paper was published after the quashing by the Court of Appeal of the conviction of a medical man for manslaughter in a case in which this accident had occurred The report of the proceedings in the High Court of that trial showed that the judge and jury were both unconvinced by the medical evidence that this accident might occur without great violence being used, and still more by the evidence that once it had occurred the proper treatment was to leave things alone unless there was hæmorrhage or other urgent reason for interference

A study of these recorded cases brings out certain points that are worth while recapitulating, because at any time criminal negligence or even a charge of manslaughter may be brought against medical practitioners or midwives who have been in attendance on the patient

The main point is that rupture of the vagina may occur spontaneously without internal manipulations, once started, the tearing may readily extend into the loose cellular planes around the cervix and lower uterine segment, and result in the complete separation of the uterus from the bladder and pelvic wall through the base of the broad ligament If the placenta is adherent or its separation and expulsion delayed, and a hand is passed up for its extraction, the detachment of the uterus may be readily effected if the extensive vaginal laceration is not immediately recognised—by no means an easy matter at the end of labour. Should, in addition, there be inversion of the uterus—whether spontaneous or the result of efforts at expression of the placenta—diagnosis is rendered much more difficult, because this rare and unexpected accident is frequently mistaken for a tumour, as is surmised to have happened in the case now recorded In one of the German cases in which a doctor was called in after the midwife had attempted to remove the after-birth manually and found the patient bleeding and collapsed, he found a large body, round which he could move his hand without feeling any adhesions and, being in doubt as to what it was, brought it out and found it was the uterus and appendages attached only to the vagina at a few points The patient recovered The unfortunate practitioner was suspended from practice and imprisoned for some months by the wisdom of the Teutonic law, whilst the midwife, clearly the cause of the disaster, escaped The most remarkable case is that recorded by Cooke in 1835 (Walters's paper, p 250) The labour was protracted (63 hours) and there was considerable hæmorrhage during the following night; 33 hours after the spontaneous delivery of child and afterbirth, the midwife was recalled because the patient had got out of bed to pass water, had screamed, and called for assistance, and was discovered sitting on a stool with a large substance between her thighs supported by her hands When the midwife arrived the patient was in bed, the large substance was connected by a shred of membrane only, was removed, and was found by the recorder of the case to be the inverted uterus with all its appendages, except the left ovary The patient survived without further treatment. The explanation given of this case is that the inverted and partially separated uterus was expelled during straining at stool, further separation occurred from the drag of the dependant mass while the patient was got back to bed, and the midwife's story, supported by husband and relatives, that only a few membranous tags remained, is accepted as reliable.

Another trial for manslaughter in this country is quoted by Walters (Popplewell, 1868), and in the discussion subsequent to the reading of his paper he said, in reply, that no penal action was taken against the midwife responsible for the case he recorded, and that he was thankful this was so, as he would at the time have given much stronger and more positive evidence against her than his further study of the subject would have justified

These disasters are happily so rare that even those of us with the widest hospital experience are unlikely to meet with more than an occasional case, so that evidence based on personal knowledge alone will not be convincing to the court, as is shown in the report of the manslaughter trial at the end of 1924 [3]

This record and references to others are made in the hope of lessening the chances of another verdict like that in the case just mentioned

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[1] Trans Obst Soc Lond, 1884, xxvi, 233

[2] THE LANCET, 1925, i, 425

[3] THE LANCET Special Supplement, Feb 14th, 1925

EXTENSION OF HOSPITALS —The Blackpool Victoria Hospital is to be renovated and enlarged at a cost of about £100,000 Additional accommodation will be provided for approximately 200 patients, and a ward for paying patients is included in the scheme —The sum of £20,000 is to be raised to equip the Chester Infirmary with apparatus for the treatment of cancer The adjacent counties of Cheshire, Flintshire, and Denbighshire will be invited to coöperate —The first block of the new Bradford Royal Infirmary at Daisy Hill is to be begun at once The cost of the whole institution will be about £500,000 It has been stated that there is no town or city in England in which the workers subscribe a larger sum per head than they do in Bradford to the hospital and convalescent fund Last year £20,000 was raised amongst the workers for distribution to the voluntary hospitals, and 1100 people were sent to convalescent homes —A fund is to be opened for the remodelling of Denbigh Infirmary, which is one of the oldest hospitals in North Wales

ON THE VALUE OF PRESENT METHODS OF TREATING LEPROSY.*

By H W. WADE, M D. Tulane.
AND
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It is now many years since the outlook in leprosy work was such that there seemed little hope of finding an effective treatment Various drugs were reported as beneficial, but few gave any apparent cures, and there was usually doubt lest these were but temporary retrogressions or if permanent, were due to factors other than treatment At present, those actively engaged in or familiar with modern leprosy work on a large scale have, as a rule, a much less pessimistic outlook However, from others one occasionally hears expressions reminiscent of the cheerless past It may be well, therefore to take stock, to inquire whether one's own more optimistic view is really justified.

Because the anti-leprosy work in the Philippine Islands is so largely an attempt at eradication and treatment, and because it was here that what may be considered the transition period began with the Heiser-Mercado treatment, it may be of special interest to compare as well as we may the results now being obtained with those of the recent past In this connexion certain other pertinent matters will be touched on

Definition of "Leper."

The term "leper" is often applied without qualification to cases that are of three main classes It has long been applied by some to anyone who shows evidence of ever having had leprosy, whether the actual disease still exists or not In the asylums of some regions the old, crippled "ex-lepers" are particularly conspicuous For all scientific purposes such cases should be distinguished from those with the active disease

Of the latter there are two groups In those most commonly seen the bacilli can be demonstrated Only such cases can be held for segregation under Philippine regulations, and Philippine reports have dealt almost solely with such cases. Because of the degree of advancement when first seen, these are at best only fairly favourable material for treatment, and usually they are decidedly otherwise.

The other group, which has recently begun to receive due attention largely because of Muir's insistence, comprises those who present only clinical evidences of the disease Such persons we prefer to call "suspects," or when the diagnosis is reasonably certain, "clinical lepers"

When these basic distinctions are not used it is impossible fairly to compare different reports on treatment work The results obtained, should suspects and clinical lepers be recorded unqualifiedly as lepers, may be expected to be comparatively spectacular, which may unnecessarily excite incredulous scepticism in the minds of physicians who treat only bacteriologically positive cases There is of course greater possibility of error in diagnosing the bacteriologically negative group, though with careful properly trained workers this is not important

Previous System and Treatment

At the time of the opening of the Culion Leper Colony in 1906, lacking a reasonably *effective treatment* the only available anti-leprosy measure was segregation of bacteriologically positive cases It were out of place here to discuss at length the effectiveness of this measure Suffice it to quote the following official statement:—

> "Revenges and anonymous letters are the best sources of information to localise detected cases of leprosy, though some lepers are identified in fiestas and sometimes in the public dispensaries"[1]

While this statement is probably too sweeping, it nevertheless has an important basis of fact, which is to be considered in connexion with claims of critics of the segregation measure that this has been applied intensively and ruthlessly.

Until recently treatment has been an unimportant factor in the eradication campaign in the Philippines, if indeed it was a factor at all Of the earlier treatment work here only a few points need be touched on In 1908 Heiser introduced, both at Manila and Culion, Dyer's method of using chaulmoogra oil by mouth. A number of patients became negative, but it is stated that none remained so for two years Injection experiments were unsatisfactory until the development of the well-known mixture of Mercado, who was house physician at the San Lazaro Hospital, Manila Several cases having become negative, systematic work was begun early in 1912,[2] and the treatment was shortly introduced at Culion According to Mercado,[3] from 1910 to 1912 he gave the treatment to 52 patients, 24 of whom "recovered, blood negative" Apparently most of these relapsed, for only four treated cases were released in 1913, after being negative for two years These were the first so to be released though one other recovery had previously occurred, spontaneously, at Culion Two more treated patients were discharged from San Lazaro in 1915, and 23 from Culion All of the latter group showed neutral stigmata suggesting that treatment had been aided by a comparatively high tendency to spontaneous recovery.

The only indication of quantitative results obtained during this period is that of 30 selected cases treated at San Lazaro by a special committee appointed in 1914, six had become negative before the end of two years We are unable to say how many of these were ultimately released After 1915 comparatively few patients were held at San Lazaro for continued treatment

As is the common experience enthusiasm on the part of the patients tended to wane In 1915 1500 received treatment at Culion (apparently weekly) Later reports were to the effect that attendance was declining and in 1919 an average of only 700 injections were given weekly No record is available of the total numbers who took treatment, but it was undoubtedly less than half and at that time perhaps only one-third of the total population, which was about 4500 in 1919 In 1922 the same number of treatments were being given with about 5000 in the colony Though the treatment was at least beneficial to most of those who could take it energetically and persistently, and probably increased the average length of life, most patients were irregular in attendance for the medicament was often so irritating to the tissues that the treatment was decidedly heroic

To ascertain the number of cases discharged between 1916 and the present period, various records have been examined, especially those of the official committee on diagnosis, on which one of us served from 1916 to 1922 Absolute accuracy for one or two of the years is not possible but the figures in Table I. are essentially correct

Excluding the 20 discharged previous to 1916, the treatment work with the Mercado mixture produced 59 discharged cases in six years, an average of 10 a year.

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* A paper read before the Royal Society of Medicine on Feb 2nd and published with the consent of the Director of Health on recommendation of the Philippine Leprosy Research Board

[1] Annual Report of the Director of Health (V de Jesus) 1919 Manila 1920

[2] Heiser V G. Report of the Director of Health 1913 (July 1st to Dec 31st) Manila 1914 (I) also U.S Pub Health Reports 1914 xxix 2763

[3] Mercado E Proc 2nd Regional Assembly of Physicians and Pharmacists of the Philippines 1914 p 105 Manila separately published (English trans. by Dr M. Tolentino of Manila 1915

TABLE I —*Treated Cases Discharged from San Lazaro Hospital, Manila, and the Culion Leper Colony, to 1922* (*a*).

	Previous	1915	1916	1917	1918	1919	1920	1921.	Total
San Lazaro	4	2	4(*c*)	14	5	2	2	9	42
Culion	(*b*)	23	4	1	4	0	12	2	46
Total	4	25	8	15	9	2	14	11	88

(*a*) Discharged cases that had become negative at San Lazaro in 1920 (Mercado treatment) and in 1921, and a number of Mercado cases discharged from Culion early in 1922, appear in the figures of Cavino and Tietze (Table II)

(*b*) One case, spontaneously recovered

(*c*) Not including five patients eloped after one negative examination

Present System.

The whole situation has changed since the advent of modern treatment methods, so much so that the general plan of the anti-leprosy campaign in the Philippines has evolved to a three-phase one, in which both treatment and segregation play leading rôles.

Two phases have to do with the handling of segregated cases (1) Those more hopeful of successful treatment are to be kept for that purpose in regional treatment stations of the hospital or asylum type, this will permit close supervision, will provide the most encouraging milieu possible, and will meet in part the objection to segregation in a distant place. (2) Those proven unfavourable for effective treatment are to be transferred to the Culion Colony where they can lead more normal lives, here those who are suitable will continue to receive such treatment.

The other phase, which it is hoped will be started in 1927, is to be the searching out and dispensary treatment of clinically positive but bacteriologically negative cases This is the activity on which Muir places so much importance for India. If it can be carried out thoroughly it will undoubtedly greatly hasten the reduction of leprosy, but the practical difficulties are such that it will require workers of unusual enthusiasm and personality to overcome them.

At present the system is in transition Only at Manila and Cebu are there quarters that can be used as treatment stations even to a limited extent. Such of the favourable cases collected there as can be accommodated are held for continued treatment, the rest being sent to Culion All cases found in other regions are still sent here direct Negatives are no longer all held until they can be discharged after the two-year negative period; under certain conditions they may be parolled after six months, to return weekly for treatment and examination Discharges and paroles are made from Cebu as well as Manila, a second committee for diagnosis having been appointed at the former place

Present Treatment and Results

With regard to the preparations now used, it is sufficient to say that the mixed chaulmoogra ethyl esters constitute the chief medicament, for the most part with iodine added to reduce irritation (0 5 per cent heated until brown) Weekly intramuscular injection is the almost universal rule

It is not practicable to present the results in such a summary as may be desirable, for more or less continuous treatment work is being done in three places, and patients are being discharged from two, the work in these places not being closely coordinated It is therefore preferable to deal separately with each centre of activity.

1. *San Lazaro Hospital*—Here experiments with the newer methods were begun on a small scale in July, 1920, primarily with the sodium salts introduced by Rogers, the ethyl esters being added shortly thereafter In due course the old treatment was generally abandoned, the ethyl esters being then used almost exclusively The results obtained here have been summarised by Cavino and Tietze[4] The pertinent figures, with recent additions, are given in Table II.

TABLE II —*Numbers of Patients Treated, becoming Negative, &c, at San Lazaro Hospital, Manila, 1921 to 1924 inclusive**

	1921	1922	1923	1924	1925
Total patients treated	443	606	642	650	649
(*a*) Admitted during the year	302	391	339	303	244
(*b*) Previously admitted	141	215	203	347	405
No treated in previous year, now transferred to Culion, &c	211	230	401	295	374
Number becoming negative during year	21	32	36	84	183
Number discharged or parolled	—	18	62	35	150

* Adapted from report by Cavino and Tietze Data from 1925 recently furnished, personal communication Figures for cases under treatment in 1920 omitted since comparatively few received the newer preparations, and those for only six months

From this summary it is seen that in five years, 1921–25 inclusive, a total of 250 (average 50 per year) bacteriologically positive cases became negative During the first four years 115 (including probably 20 to 25 that became negative under the old treatment) had been discharged or parolled The surprisingly large number released in 1925 (150) these workers ascribe to the fact that maximum results are obtained only after long periods of treatment

It is to be realised that since San Lazaro Hospital is primarily a collecting station, with insufficient accommodation for retention of all patients eligible to stay there under the plan, much of the population has been shifting This is to some extent disadvantageous, but on the whole it has probably been otherwise, permitting better selection of cases The reporters wisely refrain from drawing statistical conclusions from their data The duration of the disease in these cases is not discussed However, data as accurate as can be hoped for were got by Callender and Bittermann,[5] who carefully questioned a representative group of 259 patients during this period. The average was 2 65 years (corrected figure).

It is to be pointed out that the above figures cannot fairly be compared directly with those in Table I, for in the earlier period comparatively few patients were held at San Lazaro for continuous treatment However, it is not without significance that San Lazaro alone releases several times as many per year as Culion and San Lazaro together formerly did.

2. *Cebu Detention Camp*—This has been less a treatment station than has San Lazaro, as relatively fewer patients could be held for continuous treatment Nevertheless, a not inconsiderable number of patients have been parolled from here, as is seen from Table *III*.

TABLE III —*Data on Treatment Work at Cebu Detention Camp* †

	1923	1924	1925
Remaining from previous year	24	64	104
Collected during year	265	189(*a*)	165
Total	289	253	269
Transferred to Culion	202	84	152
Died, escaped, &c	5	15	7
Released (parole)	18	50	8
Remaining (incl negatives)	64	104	102
Total	289	253	269

† From the (unpublished) Annual Reports of the District Health Officer, Province of Cebu for 1923 and 1924, Dr S A Chiyuto, now Chief, Culion Leper Colony, for 1925, Dr Agusano

(*a*) Certain discrepancies in this report make the accuracy of these figures questionable

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[4] Cavino, C, and Tietse, S Jour Phil Is Med Assoc 1925, v, 50, also personal communication

[5] Callender, C R, and Bittermann, T Phil Jour Sci., 1925, xxvii, 9

The total figures for admission, &c , are not of importance here except to emphasise the large turnover in this institution In view of this, the number parolled, totalling 76 in three years, is creditable It is to be said that the small number parolled in 1925 is probably due to a tendency of patients to abuse the parole privileges by not returning regularly for weekly injections

3 *Culion Leper Colony* —New work was started here in the middle of 1921, with 500 cases Most of them received ethyl esters, but groups of 50 each received sodium gynocardate and sodium morrhuate, and a control 100 the Heiser-Mercado treatment By the beginning of 1922 1000 cases were under treatment, the ethyl esters being used almost exclusively. Increased appropriations, further augmented because of the keen interest taken in the matter by Governor-General Wood, made it possible greatly to expand the activity, and by the end of that year a total of 4458 cases had been, for a time at least, under treatment The average duration of the disease in these was about eight years,[6] certainly too long for systematic —i e , "cutaneous" and "mixed" cases to be considered favourable treatment material

Since then there has naturally been much change Many patients have proved, or become, unsuitable for treatment Death has unavoidably taken its quota New patients have been brought in (total 1630, 1923 to 1925 inclusive), and all suitable cases have been treated The exact total involved cannot be stated, but it is less than the total of the total figures given—i e , somewhat less than 6000

We will not discuss the results in terms of percentages improved Important as this is, the final test of effectiveness of treatment is the ability to carry improvement to the point of causing bacteriologically positive cases to become negative, and to remain so To date (Nov 1st, 1926) 358 patients have been discharged or parolled, 27 have died while in the negative period, and there are (Nov 1st, 1926) 244 negatives now undergoing observation, bringing the total to 629 This is about 10 5 per cent of all cases treated

When this can be done in a leper colony, where the patients are bacillus-positive, very few early, and many proven unsuitable for treatment, where they live scattered over a wide area, and so not under close control, where many cannot be persuaded to deny themselves the harmful indulgence of marriage or its equivalent, and where they are constantly associated with discouraging, hopeless cases, it must, we feel, be admitted that an important advance has been made in leprosy treatment

Relapses

With reference to what actually constitutes a relapse the experience of the first three years work at Culion, investigated by one of us from the viewpoint of the bacteriologist, emphasised the following basic principle —

The disappearance of bacilli in patients improving under treatment being a gradual process, at some stage it will become a matter of chance whether any of the remaining bacilli will be found in material taken for examination, and thereafter the chance will decrease progressively Consequently, it is practically unavoidable that some patients be declared negative earlier than they should be, and that at least some of these should suffer interruption of that period because of subsequent positive findings Such cases in the absence of *definite indication of reactivation of the disease* should not be considered relapses

These and other considerations emphasise the necessity of repeated careful standard examinations before declaring a patient negative, continued treatment and repeated examinations for a definite period (two years) thereafter, and occasional examinations for several years more [7]

Of the experience in the earliest period of Philippine work, Heiser stated that no treatment had caused any patients to remain bacteriologically negative for two years previous to the use of the Mercado mixture Better as this was, an unfortunately large proportion of negatives relapsed, not a few of them permanently Several so relapsed at the end of the two-year period or after release Unfortunately, accurate data cannot be worked out from available records.

Culion records showed, in October, 1925, that of the 508 patients who had then been put on the negative list since 1922, 15 per cent (75) had at some time been removed because again found bacteriologically positive One-third of these had already been returned negative In less than half of the instances (ratio 29 35) was any clinical evidence of reactivation recorded In several instances the interruptions were clearly due to overlooking in the first instance some region that should have been examined bacteriologically, this was before a systematic record card had been introduced

According to calculations based on the data obtained some 60 of the 246 who had been parolled or discharged up to that time might be expected to be found at least bacteriologically positive Actually, of the 358 that have now been sent out (November 1926) only four have been sent back to Culion, one out of 115 discharged, three out of 245 parolled One other is held at San Lazaro Unfortunately, we cannot stress these figures It is known that the released cases have not been thoroughly followed up. However, there is, to our minds, no doubt whatever that actual relapse is now relatively much less frequent than in the past

Discussion

To compare the totals indicated above, 88 discharged cases (1913 to 1921) with 684 (1922 to 1926), would not be a valid measure of the greater effectiveness of the newer preparations, for treatment work is now much more extensive and intensive than in the past, and the former figure includes only cases discharged after a two-year negative period, "parole" not being granted at that time However, we have been satisfied, from the results of direct comparative trials both at San Lazaro and at Culion, that the ethyl esters can be employed more effectively than the Mercado mixture For, while the action of each of these preparations depends on the same active principles, a given dose of the former is much smaller in bulk and less irritating locally than an equivalent dose of the oil-mixture and is more readily absorbed, as shown both by clinical observation and by experimentation [8]

The present view is that for large-scale work the modern treatment methods are decidedly superior to the older ones, and that they seem to be particularly effective in early cases Though they are admittedly much less effective in well-established advanced cases, the results obtained in the Philippine Islands during the last few years show that a not inconsiderable proportion of such cases (probably 15 to 20 per cent) can be "apparently cured" if treated intensively under proper conditions This is a noteworthy advance, however discouraging to anyone treating any particular small group of unselected cases In view of the impressive total, which all 1926 releases will bring to 800 or more, one cannot, we submit, deny the relative effectiveness of present treatment, or its absolute value in properly selected cases It were quite as correct to deny the value of surgery in cancer In leprosy, as in cancer, emphasis must be laid on getting the patient early It is from this viewpoint that treatment is now revolutionising anti-leprosy campaign systems produced 59 discharged cases in six years, an average of 10 a year.

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[6] Wade, H W Trans Fifth Congress Far East Assoc Trop Med Singapore 1923 London 1924 p 363

[7] The matter of relapses is discussed more fully in another paper Wade, H W and Lara, C B , Jour Phil Is Med Assoc , in press

[8] Walker, E L MacArthur, C G , and Sweeney, M A Trans 19th Annual Meeting National Tuber Assoc pp 553-56 Also collected reprints, George Williams Hooper Foundation, 1922-23, vol vii

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Present System

The whole situation has changed since the advent of modern treatment methods, so much so that the general plan of the anti-leprosy campaign in the Philippines has evolved to a three-phase one, in which both treatment and segregation play leading rôles.

Two phases have to do with the handling of segregated cases (1) Those more hopeful of successful treatment are to be kept for that purpose in regional treatment stations of the hospital or asylum type; this will permit close supervision, will provide the most encouraging milieu possible, and will meet in part the objection to segregation in a distant place. (2) Those proven unfavourable for effective treatment are to be transferred to the Culion Colony where they can lead more normal lives, here those who are suitable will continue to receive such treatment.

The other phase, which it is hoped will be started in 1927, is to be the searching out and dispensary treatment of clinically positive but bacteriologically negative cases This is the activity on which Muir places so much importance for India If it can be carried out thoroughly it will undoubtedly greatly hasten the reduction of leprosy, but the practical difficulties are such that it will require workers of unusual enthusiasm and personality to overcome them

At present the system is in transition Only at Manila and Cebu are there quarters that can be used as treatment stations even to a limited extent Such of the favourable cases collected there as can be accommodated are held for continued treatment, the rest being sent to Culion All cases found in other regions are still sent here direct Negatives are no longer all held until they can be discharged after the two-year negative period, under certain conditions they may be parolled after six months, to return weekly *for treatment and examination* Discharges and paroles are made from Cebu as well as Manila, a second committee for diagnosis having been appointed *at the former place*

Present Treatment and Results

With regard to the *preparations* now used, it is sufficient to say that the mixed chaulmoogra ethyl esters constitute the chief medicament, for the most part with iodine added to reduce irritation (0 5 per cent heated until brown) Weekly intramuscular injection is the almost universal rule

It is not practicable to present the results in such a summary as may be desirable, for more or less continuous treatment work is being done in three places, and patients are being discharged from two, the work in these places not being closely coordinated It is therefore preferable to deal separately with each centre of activity

1. *San Lazaro Hospital*—Here experiments with the newer methods were begun on a small scale in July, 1920, primarily with the sodium salts introduced by Rogers, the ethyl esters being added shortly thereafter In due course the old treatment was generally abandoned, the ethyl esters being then used almost exclusively The results obtained here have been summarised by Cavino and Tietze[4] The pertinent figures, with recent additions, are given in Table II.

TABLE II —*Numbers of Patients Treated, becoming Negative, &c , at San Lazaro Hospital, Manila, 1921 to 1924 inclusive* *

	1921	1922	1923	1924	1925
Total patients treated	443	606	642	650	649
(*a*) Admitted during the year	302	391	339	303	244
(*b*) Previously admitted	141	215	203	347	405
No treated in previous year, now transferred to Culion, &c	211	230	401	295	374
Number becoming negative during year	21	32	36	84	183
Number discharged or parolled	—	18	62	35	150

* Adapted from report by Cavino and Tietze Data from 1925 recently furnished, personal communication Figures for cases under treatment in 1920 omitted since comparatively few received the newer preparations, and those for only six months

From this summary it is seen that in five years, 1921–25 inclusive, a total of 250 (average 50 per year) bacteriologically positive cases became negative During the first four years 115 (including probably 20 to 25 that became negative under the old treatment) had been discharged or parolled The surprisingly large number released in 1925 (150) these workers ascribe to the fact that maximum results are obtained only after long periods of treatment

It is to be realised that since San Lazaro Hospital is primarily a collecting station, with insufficient accommodation for retention of all patients eligible to stay there under the plan, much of the population has been shifting. This is to some extent disadvantageous, but on the whole it has probably been otherwise, permitting better selection of cases The reporters wisely refrain from drawing statistical conclusions from their data The duration of the disease in these cases is not discussed However, data as accurate as can be hoped for were got by Callender and Bittermann,[5] who carefully questioned a representative group of 259 patients during this period The average was 2 65 years (corrected figure)

It is to be pointed out that the above figures cannot fairly be compared directly with those in Table I, for in the earlier period comparatively few patients were held at San Lazaro for continuous treatment However, it is not without significance that San Lazaro alone releases several times as many per year as Culion and San Lazaro together formerly did.

2. *Cebu Detention Camp*—This has been less a treatment station than has San Lazaro, as relatively fewer patients could be held for continuous treatment Nevertheless, a not inconsiderable number of patients have been parolled from here, as is seen from Table III

TABLE III —*Data on Treatment Work at Cebu Detention Camp* †

	1923	1924	1925
Remaining from previous year	24	64	104
Collected during year	265	189(*a*)	165
Total	289	253	269
Transferred to Culion	202	84	152
Died, escaped, &c	5	15	7
Released (parole)	18	50	8
Remaining (incl negatives)	64	104	102
Total	289	253	269

† From the (unpublished) Annual Reports of the District Health Officer, Province of Cebu for 1923 and 1924, Dr S A. Chiyuto, now Chief, Culion Leper Colony, *for* 1925, Dr Agusano

(*a*) Certain discrepancies in this report make the accuracy of these *figures questionable* sufficient, digestible, and given at regular intervals The best liquids are plain or soda or Vichy water

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[4] Cavino, C, and Tietse, S Jour Phil Is Med Assoc 1925, v, 50, also personal communication

[5] Callender, C R, and Bittermann, T. *Phil* Jour Sci, *1925*, xxvii, 9

A daily evacuation of the bowels should be secured, and, needless to say, regular bathing of the skin must not be neglected The heart must be examined at every visit, not only by auscultation, but also by light percussion, by means of which evidence of dilatation will usually be detected, long before a murmur can be heard It is strange that percussion of the heart in children is so little practised, and yet it is of fundamental importance in such cases

How long must the patient be in bed ? Very often six weeks is not too long a period Much depends on the severity of the case and on the amount of involvement of the heart This being so, we must, to some extent, compensate for the enforced want of real activity by making use of massage Massage in such cases not only keeps up the nutrition of the limbs, but actually aids in checking the choreic movements if regularly and properly carried out To be of value it should be gentle, and stroking rather than kneading movements should be employed by the operator The child will often sleep better if the massage is carried out in the evening , and, in any case, it should be done twice a day, if possible

During convalescence attention should be devoted to the heart It is always well to give gr 5 of one of the salicylate group along with gr 5 or 10 of the saccharated carbonate of iron for several weeks thrice daily Nux vomica and cod-liver oil are also of great value in restoring nutrition Return to school should be delayed for at least three, and preferably for six, months Watch must be kept throughout for any signs of pains in the limbs or joints, for sore-throat, or, indeed, for any other possible rheumatic manifestation The patient should have the heart examined by the medical attendant at least once in six months as long as may be considered necessary I have met with many cases of heart affection in adults traceable to chorea in childhood where no after-care had been taken Is it too much to state that not a few of these cases might have escaped any serious heart involvement if greater attention had been paid to them during the convalescent period and in the years thereafter ?

A CASE OF

PETECHIAL HÆMORRHAGES

ON THE LUNGS AND HEART OF AN UNBORN CHILD

By Sydney Smith, M D. Edin , D P H ,
PRINCIPAL MEDICO-LEGAL EXPERT, EGYPTIAN GOVERNMENT SERVICE

The following case is worthy of record

A young woman, eight to eight and a half months pregnant, received a blow on the head from a heavy stick and died shortly after She was examined at the medico-legal mortuary on the following day, and the fœtus was removed from the uterus On examination of the thoracic organs of the child numerous petechial hæmorrhages were observed on the anterior surface of the heart and aorta and over the right and left lungs They were scattered over the whole surface of the lung, but were more intense on the surfaces in contact with heart and on the interlobar surfaces. The hæmorrhages varied in size from small pin-pricks to spots the size of a pin's head The surface of the left lung had a slightly mottled appearance in the upper lobe, but as a whole the lungs looked as though they had never respired They sank when placed in water On microscopic section no trace of vesicles could be observed, but under the pleura and scattered throughout the whole of the lung tissue there were numerous hæmorrhages These were by no means petechial but took up quite a large part of the section Numbers of greatly dilated capillaries could be observed and these were in many cases surrounded by blood In certain places hæmorrhages could be traced from the lung tissue to the pleura There was no sign of organisation of the blood or other change in the tissues of the lung

The other organs of the child and the organs of the mother were healthy

The case has some medico-legal interest, for the appearance of the lungs was exactly similar to the condition found after asphyxia by violence The origin of the hæmorrhages is not easily explained It is obvious that rupture of capillaries must be the result either of excessive blood pressure or of damage to the vascular walls or both In this case damage to the capillaries is not likely to have occurred as the death of the mother took place within a few minutes, and she was previously in normal state of health Increase of blood pressure must therefore be the principal causal factor, and it is of interest to ascertain in what manner this might produce the conditions found.

When the mother died the fœtal blood circulating in the placenta would be deprived of its oxygen and remain charged with the products of metabolism If vasomotor control in the fœtus is operative, this would cause an increase in blood pressure, and I suggest that this case gives some justification for the assumption that the centre is operative in the fœtus

In the fœtal circulation, it will be remembered, oxygenated blood from the placenta passes by the inferior vena cava to the right auricle, and is directed across this chamber and passes through the foramen ovale into the left auricle Impure blood from the upper part of the body passes by the superior vena cava into the right auricle, and after mixing slightly with the blood from the inferior vena cava, passes to the right ventricle through the tricuspid valve This impure blood then passes to the pulmonary artery and after a small quantity is distributed to the lungs by the right and left branches, the main bulk of the blood enters the aorta by means of the ductus arteriosis The normal blood pressure in the pulmonary artery and right side of the heart must be greater than the pressure in the aorta and left ventricle, otherwise it would not be possible for the blood in the pulmonary artery to be forced into the aorta

If, now, anything occurs which stimulates the vasomotor centre, the increase of pressure will occur only in the systemic circulation, for the pulmonary circulation is not controlled by this centre A point may thus be reached where the pressure in the aorta is equal to the pressure in the pulmonary artery, and the full quantity of blood in the latter, instead of finding an outlet into the aorta through the ductus arteriosis, must be forced through the lung capillaries. This increase in volume of blood would naturally cause dilatation of the capillaries, and numerous hæmorrhages by rupture would result The condition found microscopically would thus be reproduced

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TWO CASES OF

STREPTOCOCCAL EMPYEMA TREATED BY CONTINUOUS ASPIRATION

By H Ferguson Turney, M B Oxf ,
M R C P Lond ,
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The treatment of empyema by continuous aspiration appears to have attracted comparatively little notice in recent discussions on the subject , hence the following two cases treated by this method are worthy of record, especially as both were streptococcal in origin The technique used was fully described by F J Poynton and F N Reynolds [1] Briefly it consists in introducing a short silver cannula between the ribs by means of a trocar, novocaine anæsthesia being used A tight-fitting rubber catheter is then passed through the cannula, and suction is applied by means of a water pump The only modification of the original method was the use of an elastic rubber belt to keep the cannula in place, and this was found far more effective than tapes

The two following cases were admitted on successive days to the Hospital for Sick Children, under the care of Dr F J Poynton

Case 1 —A boy aged 6 years and 2 months The history began with broncho-pneumonia on Dec 27th, 1925, the

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[1] The Lancet, 1921, ii , 1100

Clinical and Laboratory Notes.

A CASE OF
SEVERE CHOREA ASSOCIATED WITH TAPEWORM,
WITH REMARKS ON THE TREATMENT OF THIS DISEASE

By JAMES BURNET, M D , F R C P EDIN ,
LECTURER ON DISEASES OF CHILDREN, SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH

THE special interest of the following case lies in the fact that the patient was distinctly rheumatic, although the movements ceased almost as soon as the tapeworm was passed

The patient was a girl aged 9½ years Both parents were rheumatic The father had suffered in early life from acute rheumatism, and the mother suffered at times from pains in the shoulders and ankles An only brother, aged 12, had a severe attack of acute rheumatism at the age of 10, which affected the heart The patient herself had had frequent attacks of sore-throat, and a year previously had a slight attack of chorea

When first seen she had been ill for about ten days She was confined to bed, and her movements were extremely violent, so much so that on two occasions she had fallen on to the floor Her face was abraded from constant rubbing on the pillows, and one of her elbows was skinned She jerked her head, arms, and legs continuously so that she could only be restrained with the greatest difficulty Under the circumstances feeding had become almost impossible The temperature was 102 6° F , rising to 103° F towards evening The pulse was very rapid, feeble, and somewhat irregular The average rate was between 140 and 150 Respiration was very difficult and irregular The patient took no notice when spoken to, and looked extremely haggard and pale Examination of the heart, which was by no means easy, revealed a considerable amount of enlargement and a definite systolic bruit at the apex

As the bowels had not acted for five days an enema was given, which yielded a good result After this the girl was given chloral hydrate gr 10 per rectum, and this dose was repeated in six hours At the same time salicylate of soda gr 10 4-hourly was ordered, and she was put between blankets on a water-bed Next day the temperature fell, but the movements remained quite as severe, and the possibility of tapeworm was accordingly thought of Some years ago I had published three cases of chorea associated with tapeworm,[1] but since then I had not met another case of the kind In this case the association existed, and early in the morning she was given half a drachm of ext. filicis liq in warm milk Four hours later a dose of magnesium sulphate was administered, and in the forenoon she passed a large tapeworm Unfortunately the head could not be found

On the evening of the same day the movements were markedly lessened The temperature had fallen to 99 4° F , and the child for the first time spoke She asked for water, and wished to sit up in bed From then onwards she made an uneventful recovery She was, however, kept in bed and given salicylate of soda for nearly a month, during which time the condition of the heart gradually righted itself She was then ordered iron and cod-liver oil

Had this child been treated by means of arsenic recovery could not have taken place The case emphasises the importance of determining the exact cause, especially in severe cases of chorea, even in subjects known to be rheumatic This patient was definitely rheumatic, and yet the chorea was obviously started by the presence of a tapeworm Chorea seldom occurs in any but rheumatic children, and yet not every rheumatic child suffers from chorea Before it can develop there must be some exciting cause superadded to the constitutional disease This exciting cause may be school strain, the approach of puberty, fright, or, as in this case, the presence of intestinal parasites It is incumbent upon us to discover such exciting factors, and either counteract or remove them before undertaking the treatment of the chorea itself This is matter too often forgotten or neglected in such cases The result is that cure is either delayed, or at best is very imperfect

As regards the treatment of chorea itself, it is extraordinary to find how many still cling to the routine administration of arsenical preparations It is a guiding principle in therapeutics to treat, if possible, the cause of any disease In practically every case of chorea occurring in childhood we have a definite underlying constitutional condition—namely, rheumatism Surely, therefore, it is our duty in all such cases to administer one of the salicylate group of remedies There are those who maintain that there is no known drug which will actually cure chorea This is, to a certain extent, perfectly true At the same time it is incumbent on us in all such cases to give antirheumatic remedies with a view to counteracting the rheumatic influence at work In this respect, acidum acetylsalicylicum is to be preferred to salicylate of soda, as it is less likely to produce symptoms of acidosis and at the same time is rather more pleasant to take When salicylate of soda is given, it is always advisable to combine it with an equal quantity of the bicarbonate, and only the pure natural salt should be employed Another important fact to be kept in mind is that small doses are not likely to do much good. To a child of ten years not less than gr 10 either of acid acetylsalicyl or of salicylate should be administered for a single dose, and this may be repeated thrice daily or every four hours, according to the severity of the attack

If arsenic is given it should never be pushed, as is far too frequently done In fact, there can be no doubt that many so-called cases of chorea by means of this drug are due to the production of peripheral neuritis. Like other observers, I have met with several cases of this kind The usual practice is to begin with drop doses of the liquor arsenicalis, and go on gradually increasing the dose by 1 minim until 10 or even 15 minims are taken three times a day This, in my opinion, is a very dangerous practice Not only does the arsenic fail to benefit the rheumatic condition underlying the chorea, but it renders the patient liable to very bad after-effects In one case a child had been getting 15 minims of the liquor arsenicalis thrice daily for several days The choreic movements had certainly entirely ceased but the child's limbs were completely paralysed There was a mild degree of drop-ankle and drop-wrist present, and on grasping the limbs the patient winced Sometimes these symptoms do not appear at once They may be delayed until some time during the convalescent period. In one such case the onset of the neuritis did not occur until three or four weeks after the patient had been allowed out of bed If, therefore, arsenic is given, it should be administered in moderate doses, and heroic amounts, such as 10 or 15 minims, should not be approached in any case If this drug is going to benefit the case, it will certainly do so in doses ranging from 3 to 5 minims , if not, then the sooner its administration is given up the better

Other drugs which have their advocates are chloral hydrate, which appears to act best in those cases in which the sleep function is disturbed It is certainly to be preferred to bromides in such cases Sometimes, especially in younger children, phenazonum may be tried, as it certainly seems to possess a sedative and antispasmodic action , but its effects must be carefully watched The only other drug which need be mentioned is calomel This is of special value, I find, in cases where the heart is seriously involved

There are certain other points in the treatment of chorea which have to be kept in view I believe that such cases should always be treated between blankets Watch should be kept on the skin lest bedsores develop, and every care taken to prevent their occurrence Sometimes a water-bed will be necessary. In the diet, soups, eggs, custards farinaceous foods, porridge, fish, chicken, jellies, and fruit are all of value Tea with an equal amount of milk may be given Rusks, toast, bread with butter dripping, or marmalade may be allowed Care must always be taken to see that the patient's food is

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[1] British Journal of Children's Diseases, March, 1905

Symptoms and Clinical Types —Diagnosis rested on a symptom-complex which included one or more of three cardinal symptoms — amenorrhœa, irregular uterine hæmorrhage, and abdominal pain Pain on defæcation was also an important symptom Shoulder pain was usually associated with ruptured tubes where the peritoneal cavity was suddenly flooded with blood The incidence of the symptoms was as follows . amenorrhœa 72 per cent , irregular uterine hæmorrhage, 92 per cent , abdominal pain, 97 per cent Irregular uterine hæmorrhage was associated with separation of uterine decidua, but might persist after complete expulsion of decidua or after curettage, in which case it might be due to presence of living chorionic villi Abdominal pain was generally sufficient to indicate to the patient that something was wrong , it might be lancinating, colicky, or diffuse The site of the pain generally indicated the site of the pregnancy Amenorrhœa, uterine hæmorrhage, and abdominal pain were present together in 64 per cent of cases, whilst bleeding and abdominal pain were associated in 24 per cent Amenorrhœa and abdominal pain were found in about 4 per cent , amenorrhœa and bleeding in 3 per cent , and pain alone in 3 per cent. The cases might be divided into three groups or clinical types: (1) Those in which the ovum remained in the tube, and there had been little or no hæmorrhage into the abdomen (13 per cent in this series) (2) Those in which rupture or abortion had recurred with diffuse intraperitoneal hæmorrhage (27 per cent.). (3) Those in which rupture or abortion had taken place with gradual or repeated hæmorrhage into the abdomen (60 per cent).

Treatment was surgical, and the sooner the better. It was impossible to foretell when another, and possibly fatal, hæmorrhage would occur. In the very severe cases, where the patient was pulseless and profoundly shocked, operation might be delayed for a time while treatment was directed to the shock When and if the condition of shock was relieved, operation should be undertaken immediately.

Prognosis and After-history —Prognosis was good, and was better the earlier the operation could be performed There was no disease of parallel severity in which the response to prompt surgical treatment was so rapid and so satisfactory There were no deaths in Prof Dougal's series As regards subsequent pregnancies it was found that among patients who could be traced and who had been operated on more than six months previously the results were as follows subsequent uterine pregnancies, 46 per cent ; subsequent ectopic pregnancies, 13 per cent , no subsequent pregnancy, 41 per cent The prognosis for subsequent uterine pregnancy was fairly good, but there was a serious risk of the patient having a second ectopic pregnancy In this series seven patients had had two ectopic pregnancies

Discussion

Dr. F H **LACEY** asked if there was any history of infections in the puerperium He considered that shoulder pain was usually complained of in ectopic pregnancy

Dr W W **KING** considered that rectal pain was more common than shoulder pain He strongly advised waiting in the very severe cases till the accompanying shock had been treated. He did not regard the other cases as urgent at all

Dr **LEITH MURRAY** had recently examined his series of 112 cases He had found the pregnancies more common on the right side (67) than on the left (45) He did not agree with Prof Dougal as to the terminations In his series the intratubal ruptures greatly exceeded the tubal ruptures The figures were intratubal rupture including mole abortion, 105; primary peritoneal rupture, 1; secondary peritoneal rupture, 4 , intraligamentary rupture, 2 He agreed that in the majority of cases there was evidence of pelvic disease or a history of antecedent infection Disease of the appendix might be a common predisposing factor accounting in the first place for the preponderance of cases of pregnancy on the right side. In these cases he had removed numbers of apparently normal appendices, and microscopically had found them diseased In his series a history of amenorrhœa was less often elicited, and pain was not so marked a feature

Dr. E O **CROFT** said that in his experience amenorrhœa was not so marked a symptom and pain was generally abdominal In some cases it was situated elsewhere than over the lesion.

Dr A A **GEMMELL** asked if there was any evidence of an increased number of abortions antedating these ectopic pregnancies, as in Germany it had been thought that ectopic pregnancies had increased with the increase in criminal abortion during the war.

Mr **ST GEORGE WILSON** asked if in any of the severe cases transfusion with the patient's own blood had been carried out. He had lately done this in a case of uterine rupture, with satisfactory results

Mr. W **GOUGH** agreed about the need for early operation

Prof **MILES PHILLIPS** had recently collected 150 cases with three deaths As regards the ætiology, he was of the opinion that in a number of cases ovarian disease or dysfunction was a factor

The **PRESIDENT** remarked on the preponderance of ruptures over tubal abortions and agreed with Dr Murray that in his experience it was the reverse He had operated on cases with normal tubes but cystic ovaries, and he considered that ovarian disease was a factor in the ætiology.

In reply, Prof **DOUGAL** said that he had no complete details of previous puerperal infection, but he had details of cases with previous abortions He did not approve of delay in operation in any type of case. The symptoms in unruptured cases were quite definite He agreed about the large number of cases of ectopic pregnancy on the right side, and he had operated on patients from whom the appendix had been removed previously In some cases it was difficult to decide whether there was rupture of a tube or an abortion He had not tried transfusing the patient with her own blood The ovaries, he thought, might sometimes be at fault

Fibroids after the Menopause

Dr **MURRAY**, after describing a case of infraligamentary fibromyoma removed from a woman of 60, said that in his experience fibroids rarely caused symptoms in the menopause In 540 consecutive operations for fibroids only 14 (2 6 per cent) had caused symptoms in the menopause Œdema of the fibroid was the usual cause of postmenopausal symptoms

The **PRESIDENT** remarked on the small number of postmenopausal fibroids in Dr Murray's series He had seen many cases of fibroids which had caused symptoms after the menopause

Prof **PHILLIPS** and Dr **CROFT** agreed with the President

Mr **GOUGH** remembered seeing a case of fibroids in the menopause giving rise to symptoms owing to shrinkage It had previously rested in the abdomen, and when it shrank had fallen down into the pelvis and caused retention of urine

Dr **MURRAY** also described a case of

Congenital Absence of Vagina and Cervix

A girl, aged 15, was sent to hospital with a history of abdominal pain lasting two years The pain was colicky, occurred every four to five weeks and lasted, on each occasion, about five days She had a feeling of much weight in the pelvis at those times and frequently vomited There had been no menstruation. Examination under anæsthetic on Dec 16th, 1925, showed a vulval depression which just admitted the top of the index-finger This was all that could be found to represent a vagina. The vulva and the site of the urethral orifice were normal, and the breasts and pubic hair were well developed On bimanual rectal examination no thickening such as would suggest a vagina could be found The uterus appeared to be normal in size and position ; the right ovary was readily palpated

At a perineal exploratory operation the pelvic connective tissue between the urethra and the bladder in front and the bowel behind was easily opened by a finger, after incision patient getting steadily worse until Jan 7th, 1926, when a swelling appeared on the right side of the chest On the following day the chest was aspirated and 3½ pints of pus removed On Jan 11th a similar amount was withdrawn, and on the following day a rib was resected Very little fluid was found in the chest, and only a negligible amount drained from the wound The condition getting worse, the patient was admitted to hospital on Jan 21st

On admission he was very pale and emaciated, obviously in a serious condition, and with a temperature of 102 8° F Examination of the chest suggested a pyopneumothorax under considerable pressure, both respiratory distress and displacement of the heart being very marked The operation wound was very low down, and drainage could not be established through it The chest was aspirated and several ounces of pus removed The condition at once improved and the temperature fell, but subsequently rose again, and on Jan 31st a further 8 ounces of pus were removed Again a temporary improvement occurred, but the temperature rising once more, it was decided to start continuous aspiration. This was done on Feb 5th. Pus drained away freely for the first few days, and then rapidly diminished The cannula was removed on Feb 16th and recovery was uninterrupted

A hæmolytic streptococcus was isolated from the pus

Case 2 —A boy aged 9 years and 1 month The illness began 12 days before admission, with pain in the right side of the chest On admission the boy was in a very toxic condition with a temperature of 102 4° F A needle was inserted and 3 ounces of very foul-smelling streptococcal pus removed A small abscess containing similar pus subseqently formed at the site of the puncture The temperature fell after the aspiration but rose again, and on Jan. 29th continuous aspiration was instituted Two days later the wound round the cannula became infected, probably as the result of an error of judgment in the introduction of the cannula too near to the original puncture, and the cannula had to be removed Fomentations were applied to the chest, and the wound infection rapidly cleared up

On Feb 8th a self-retaining catheter was introduced through the original puncture in order to maintain drainage, it was removed on Feb 12th as all discharge had ceased The temperature now remained normal for over a week, but on Feb 20th it began to rise again On Feb 24th continuous aspiration was again resorted to, the cannula being replaced under nitrous oxide anæsthesia Some ounces of the same foul-smelling pus drained away For the next dew days pus continued to discharge and then gradually ceased The cannula was removed on March 10th, and thereafter recovery was uneventful.

Discussion.

In both these cases a surgical opinion was obtained, and in each case, though aspiration was regarded as a mere preliminary to operation, surgical interference was subsequently found to be unnecessary Two points, on account of their practical bearing on treatment, appear worthy of further emphasis

The first of these is the failure of simple aspiration and the success of the method of continuous drainage by aspiration, which by itself suggests that this should be adopted by choice It is well known that simple aspiration is sufficient to bring about an ultimate cure in many cases of empyema, but even so it is certain that a considerable quantity of pus must be left in the pleural cavity to undergo absorption or organisation with resulting toxæmia, and the possibility of permanent impairment of the lung These disadvantages are avoided by the method of continuous aspiration, and it is interesting to note that in the cases under discussion the completeness of the recovery was confirmed by both clinical and radiological evidence

The second point is that both these cases were examples of a streptococcal infection, in which it is a matter of general agreement that open operation is essential In fact, the usual objection to all aspiration methods is that the streptococcal infections do not clear up, while in the pneumococcal types large fibrinous masses tend to be left behind, which interfere with the subsequent expansion of the lung The former objection was shown to be groundless with treatment by continuous drainage, the latter lies, perhaps, beyond the scope of this note, but there is reason for believing that such fibrinous masses undergo liquefaction and are efficiently dealt with by the same method

Lastly, the simplicity and almost painless nature of the manipulations must be emphasised Both the above patients were highly strung, nervous boys, but in neither case was any difficulty experienced in introducing the cannula, and once in position it was quite painless In addition to this, the daily dressings, so often a source of terror to children, are completely done away with

It will take time and a more extended experience before the final results by this method can be critically compared with those of open operation, but its essential superiority to any method of intermittent aspiration appears to be beyond doubt

My best thanks are due to Dr Poynton for his permission to publish these cases

Medical Societies.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A meeting of this Society was held at Sheffield on Feb. 25th, Prof **Fletcher Shaw**, the President, in the chair. Prof D **Dougal** read a paper on

A Hundred Cases of Ectopic Pregnancy

operated on by him during the last seven and a half years The number of operations actually performed was 105, as in five instances a second operation for a similar condition was carried out. The main features of the cases were as follows

Pathological Anatomy —The pregnancy was situated in the Fallopian tube in 103 cases In two cases of infected hæmatocele only the posterior fornix was opened In the vast majority pregnancy was early, in only two cases had the fœtus reached two months development. In 76 5 per cent of cases tubal mole was present, whilst there was no mole in the remainder. The pregnancy was on the right side in 59 per cent and on the left side in 41 per cent The terminations observed at the time of operation were as follows tubal abortion, 52 per cent, tubal rupture, 37 per cent; unruptured, 12 per cent In four cases it was impossible to give an opinion Both rupture and abortion were noted in one case

Ætiological Factors —Sixty-six per cent of cases occurred between ages of 26 and 35, the youngest patient was 21 and the oldest 43 The greatest number of cases occurred during the first five years of married life, a considerable proportion during the second five years In eight cases the patients had been married one year or less, and in all of these the ectopic was the first pregnancy Evidence of pelvic infection was noted in only one of these cases

Nearly one-third of the patients had never had a previous uterine pregnancy In those who had previously been pregnant—given that the normal interval between successive pregnancies was *not* more than three years—the interval was unduly long in 55 per cent, and it exceeded five years in 31 per cent The shortest interval was seven months

The chief predisposing cause of extra-uterine pregnancy, said Prof Dougal, was undoubtedly a previous pelvic infection which had so damaged the Fallopian tubes as to obstruct or delay the passage of the fertilised ovum to the uterine cavity Developmental abnormalities and distortion of the tubes might have a similar result, but occurred less often In certain cases—e g., gonococcal—evidence of old infection could only be obtained by microscopical examination of the tubal mucosa In this series old-standing adhesions had been present in 50 per cent of the cases The opposite tube was converted into a hydrosalpinx in seven cases and a pyosalpinx in one case The only developmental abnormality met with in this series was a bicornuate uterus, this pregnancy was situated in the right tube, and terminated by abortion Fibroids were seen in two cases calcium mechanism of the body. In making parathyroid products it was generally the external parathyroid which was utilised

Dealing with the suprarenals Dr. White cited one case of severe asthma where the patient had received at least 50,000 injections of adrenalin solution. His blood pressure to-day was probably not more than 120 systolic, so that the continued use of adrenalin had not resulted in permanent high blood pressure In fact, most of these asthmatic cases had a low blood pressure with an exaggerated vagal tone. Reference was made to the classification of hypopituitarism into pre-adolescent and post-adolescent types, and the more modern classification into deficiency of the anterior as opposed to the posterior lobe Pre-adolescent hypopituitarism involving only the anterior lobe was now referred to as of the Lorain-Levi type In this type of case the patient was of short stature the genitalia remained infantile in development, and secondary sexual characteristics were absent With the well-known type of adipose genital dystrophy (Fröhlich s syndrome) there was, in addition, girdle obesity in which the deposit of fat extended over the lower part of the abdomen to the lower third of the thigh Speaking of anterior pituitary, the lecturer reminded his audience that Gardiner-Hill claimed to have had better results in cases of defective growth in children by the combined administration of thyroid and anterior pituitary than with either of these glands alone

After speaking briefly of the recent work of Allen and Doisy in isolating the active extract from the ovary, Dr White concluded by saying that the uses of gland therapy were many and logical, but we were not likely to advance very far if we took a pessimistic view, or if on the other hand, we adopted the equally unfortunate attitude of the optimist who was prepared to prescribe gland preparations for conditions which obviously did not lend themselves to it

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of this Institution was held on Feb 17th when Dr. HENRY COHEN read a paper on the

Diagnosis and Localisation of Spinal Tumours

based on 16 cases He discussed the diagnosis under three headings: (1) the gradually increasing compression of the spinal nerves and cord, (2) the site of the compression; and (3) the nature of the compression. After a general survey of the clinical features, Dr. Cohen gave a critical account of the available methods of diagnosis He dismissed the air replacement method of myelography as of no practical value, and then spoke of his experiences with heavy lipiodol introduced by the cisternal route This procedure, he said, was not without danger because of the irritation and comparative non-absorbability of the drug; he had found it present more than two years after it had been injected. Lipiodol should *not* be used he *thought*, (*a*) until a definite diagnosis of compression of the cord had been made by careful examination of signs, symptoms, and cerebro-spinal fluid; (*b*) unless exact localisation by clinical methods was impossible; and (*c*) unless an operation was to be subsequently undertaken Dr Cohen showed lantern slides illustrating the possibility of differentiating extramedullary growths by the use of lipiodol The value of light lipiodol (ascendant) was questionable After discussing the nature pathology, and differential diagnosis of spinal tumours, Dr Cohen indicated the general prognosis with regard to operative mortality, and the likelihood of recovery of function after complete removal of the tumour He pleaded for the earlier recognition of these cases in order to improve the results in a disease which when treated early, was one of surgery's greatest triumphs but if left too late resulted in the tragedy of a bed-ridden paraplegic

Dr S BARTON HALL read a paper on Blood Pressure in the Psychoneuroses, which will appear in a later issue of THE LANCET

Reviews and Notices of Books.

ALCOHOL AND LONGEVITY.

BY RAYMOND PEARL, Institute of Biological Research The Johns Hopkins University London and New York Alfred A Knopf 1926 Pp 273 15*s*

IN this book Dr. Pearl has collected together his well-known researches on the effect of alcohol on the duration of life, the main results have already appeared in short papers. That excessive drinking tends to shorten life is not in dispute, but the question remains whether regular moderate drinking, such as "a daily pint or two of beer or a daily bottle of claret or a few glasses of whisky and soda" does in fact tend to an appreciable decrease in the expectation of life Dr Pearl offers some direct evidence on this point in the form of a sample of over 5000 of the working-class population of Baltimore and Maryland. By reclassification he has met the criticism that in his original studies moderate and heavy drinkers had been classed together The material used was collected (originally for another purpose) by direct inquiry among the families concerned. As regards qualitative classification the limitations of the material available however tactfully the latter may be sought, and however willingly given are obvious, but the careful avoidance of bias in obtaining the data and the critical analysis of the results seem to justify the conclusion that in this sample moderate drinking did not shorten life The heavier drinkers, on the other hand showed heavier ratio of mortality than either the abstainers or moderate drinkers—a result in accordance with much previous life insurance experience To draw from these data the general conclusion that the moderate consumption of alcohol has no harmful biological effects would be to press them farther than they will go and the author is careful to do no more than to suggest that in his opinion this conclusion is probably true Pearl supplements this statistical evidence with a summary of the experimental work done by himself and others on the effect of alcohol on animals, birds, and insects From this he concludes that in these cases the racial effect of alcohol is preponderantly either beneficial or at least not harmful and that this beneficial effect appears to be the result primarily *of the fact* that alcohol acts as a definite but not too drastic selective agent both upon germ-cells and developing embryos The chief harmful racial effects were the production of defective offspring in early generations in guinea-pigs and some reduction in fertility. The summing up is perhaps too definite in face of the fact that in C R. Stockard's experiments with guinea-pigs the beneficial effect did not appear till the fourth generation the last four generations being unalcoholised

The book is clearly the result of a large amount of careful work, and the statistical data of moderate drinkers appears to be the first of their kind. Some minor points here and there suggest hasty writing. The statement for instance, on p 105 that in these life-tables—"a person goes out of the exposed to risk only because of death" is not accurate, as all the living go out of the exposed to risk at their age at the time of record The argument on p 107 that to start the tables at age 20 (and so include among the abstainers persons who died early but might otherwise have passed from the abstainer class to one of the drinking classes) would be to make the death-rates of the abstainers "spuriously high" is unsound so far as concerns the actual effects of drinking or not drinking, and is only valid as regards the effects of the other habits and characteristics of drinkers or persons liable at some future time to become drinkers—which is not the point under examination The side issue of the mortality of parents is also not very clearly treated, two points arise which should be dealt with separately One is the entirely "spurious" at the apex of the vulval depression The lower pole of the uterus could just be reached, but was not brought down by volsellum lest injury to the bladder or bowel resulted No suggestion of any vagina was found

The girl was kept in hospital for observation during her next periodic pain There was no question that she began to suffer severely on Dec 21st The attack was an obvious colic associated with abdominal pain, tenderness, and backache, it lasted four days and the patient was then very languid and tired On Jan 2nd, 1926, the uterus was removed together with the left appendage The fundus of the uterus was adherent to the bladder, and there was a small quantity of black uncoagulated blood in the pelvis Both appendages were lightly adherent, particularly around the tubal ostia It seemed likely that blood had on occasions been regurgitating into the peritoneum Each ovary appeared normal and neither was enlarged, the uterine body was firm and not appreciably abnormal On cutting across the broad ligaments, as soon as the uterine arteries had been divided, the uterus was completely released by finger pressure The lower pole bore no resemblance to a cervix and was uncovered by epithelium The sudden release of the uterus, after section of the broad ligaments, was very noticeable and quite unexpected, this may have been due, in some degree, to the preliminary exploration

The length of the uterus was two and a half inches On opening the cavity about 18 drops of dark fluid escaped, this was obviously under tension The cavity thereafter was found to measure one and a quarter inches, it ended blindly, and the obdurating bridge at its lower pole measured three-eighths of an inch There was no evidence of dilatation of the Fallopian tubes

Sections show no sign of cervical stroma or endocervix The endometrium is practically normal throughout except at the lowest level, where a slight tendency towards polypoidal development is evident The wall of the uterus and the obdurating bridge appear as a normal myometrium

Dr MURRAY said that he had failed to find in literature any case exactly comparable to this. According to Keibel and Mall,[1] the tubal position of the uterus formed the corpus uteri and the utero-vaginal canal the cervix and vagina, the development of these two was therefore to some extent independent It seemed remarkable, however, that the demarcation between the distal three-quarters and the remaining quarter of the whole uterine and vaginal tube should be so complete as was evident in this case Mr Stacy had read an almost similar case to the Anatomical Society in 1924

Prof DOUGAL read notes of a case of

Adhesive Vulvitis

The patient was 36 years of age, married ten and a half years, and a nullipara. Menstruation was normal Eight years previously, during a severe attack of pneumonia, she began to complain of irritation about the vulva, and the "vagina healed up" Intercourse had not been possible since, and recently she had had difficulty in micturition. Six years ago she had been curetted, and the adherent labial folds separated, but she had been no better

On examination the labia minora were found completely glued together in the midline, except at a point about the middle of the vulva, where a small opening one-eighth of an inch in diameter served for escape of menstrual blood and urine Under an anæsthetic it was found possible to separate the adherent folds without difficulty, and during separation a thin layer of desquamated epithelium was partially torn away and remained stretched across the vulval opening The area affected consisted of the inner surfaces of the labia minora and the folds about the clitoris The surfaces were disinfected and separated by a dressing, but in a few days became adherent again, so the vulva was excised, and the vagina orifice well opened up, and no labial surfaces were left in contact Seen two months afterwards, she was quite well, and there was no recurrence

Sections of the skin showed inflammatory changes in the deeper layers, and thickening and keratinisation of the squamous-celled layers

Prof PHILLIPS asked if Prof Dougal thought that the infective agent was the pneumococcus He himself had seen a case of pneumococcal endometritis in pneumonia

Prof DOUGAL said that he believed that the condition was due to the pneumococcus

Dr LACEY described a case of

Foreign Body in the Pregnant Uterus.

The patient, aged 28, had had amenorrhœa for two months, had felt a lump in the vagina, and had tried to push it back with a crochet hook, which disappeared She aborted in hospital and at operation the crochet hook was found protruding through the posterior wall of the uterus and firmly embedded against the sacrum It was removed with little difficulty, and she made an uninterrupted recovery

The PRESIDENT inquired whether these cases should be reported to the police

Dr MURRAY said that he had had a case of premature twins in which he suspected criminal abortion He had asked the British Medical Association what should be done and had been advised not to do anything unless the patient died.

Dr J W BRIDE had removed two crochet hooks from the abdomen, one from the right kidney pouch and the other from the pouch of Douglas In neither case was the patient pregnant, though pregnancy was suspected One of the cases was already in the hands of the police, and when he informed them that the patient was not pregnant, they took no further action

Dr CROFT had had a similar case, and had removed the foreign body after the abortion.

Miss RUTH NICHOLSON described a case of cystic papillary tumours of the ovaries

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

AT a recent meeting of this Society, Dr J C BUCKLEY, the President, in the chair, Dr J STANLEY WHITE read a paper entitled

Some Recent Aspects of Gland Therapy

After dealing generally with the subject of hormone balance he went on to speak of the glands individually He laid emphasis upon the value of determining the basal metabolic rate in cases of thyroid dysfunction, and speaking of the use of thyroid in obesity reminded his audience that obesity was not necessarily due to hypothyroidism Obesity was often influenced by gland therapy, but it was obvious that thyroid obesity was really a minor manifestation of myxœdema Other endocrinological aspects of obesity had to be considered—pituitary obesity, thymic obesity, and gonadal obesity Referring to the less severe cases of hypothyroidism, he expressed the opinion that these cases were much more frequent than was generally realised A medical officer of health had stated that sometimes as many as 10 and 12 per cent of children in a community might be exhibiting mild forms of hypothyroidism He instanced the type of patient that became readily fatigued and was not able to apply himself closely to study Such cases responded well to minute doses of thyroid

Going on to speak of exophthalmic goitre Dr White said that until recently Graves's disease had been regarded as a condition of hyperthyroidism, the symptoms being attributed to the presence in the blood of a secretion that was normal in quality but abnormal in quantity The distinction between the excessive secretion of a normal substance and the secretion of an abnormal and toxic substance had only been clearly worked out within the past few years, and we were now compelled to recognise hyperthyroidism as a condition entirely distinct from exophthalmic goitre, and one that called for quite different treatment

The parathyroid glands, said Dr White, were embryologically related to the thymus rather than to the thyroid, although in practice it was found difficult to present a parathyroid product which was entirely free from this latter gland He explained the theories underlying parathyroid therapy, making reference to the Noel Paton school, which regarded the parathyroid as a detoxicating agent in that it seemed to be capable of neutralising the poisonous purin derivative guanidin, which otherwise tended to collect in the muscles Many clinicians, however, favoured the view that the function of the parathyroid was chiefly to control the

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[1] Keibel and Mall Manual of Human Embryology 1912, vol ii, p 932

DISEASES OF THE EYE

Fifth edition. By SIR JOHN HERBERT PARSONS, C B E , D Sc , F.R.C S , F R S., Ophthalmic Surgeon, University College Hospital , Surgeon, Royal London (Moorfields) Ophthalmic Hospital London J and A Churchill 1926 With 21 plates and 313 text-figures Pp 676 19s

THIS book contains the information that the average student is likely to require without being so bulky as to frighten him The fifth edition does not greatly differ from its predecessors There are 23 extra pages which include 17 extra figures, some of which illustrate the use of the slit-lamp for displaying the intimate structure of the lens or the exact depth of a foreign body in the cornea ; others reproduce some valuable pathological sections by the late George Coats, illustrating the microscopical appearances in vascular diseases of the retina These subjects cannot be more than lightly touched on in a book of this scope The author's views on the pathology of retinitis pigmentosa or of angioid streaks in the retina are not universally acceptable Some operators, again, though not many in this country, might demur at the somewhat cavalier way in which the newer operations for intracapsular extraction of the lens are dealt with, while other authorities might consider too dogmatic the advice given as to the treatment of difficult cases of sympathetic ophthalmia—to excise the wounded eye, even when it retains sight, the moment there is the slightest sign of ciliary irritation or keratitis punctata in the fellow eye But a text-book is no place for the exhaustive discussion of controversial matters The student has to learn some time that opinions on certain parts of ophthalmology are not unanimous, and it is on the whole desirable that he should realise this at an early stage of his career For a practical guide to the subject, however, he has in this book all that he is likely to require before he begins to specialise, and no one could wish for a more concise and readable exposition of the present-day orthodox teaching of ophthalmology

ASTIGMATISM

Die Bestimmung des Astigmatismus durch die Schattenprobe mit Cylinderglasern By Prof Dr K LINDNER, Director of the Eye Clinik in the General Polyclinik of Vienna Berlin S Karger. 1927. With 83 figures, some coloured Pp 111

THIS is a book well worthy of study by that increasing number of students and practitioners who aim at making the accurate determination of refractions an important part of their life work It is easy enough to learn how to do a retinoscopy which shall be approximately accurate, but to attain precision is far more difficult, so much so that for what we may term the fine adjustment, many still prefer to rely chiefly on subjective tests The matter becomes specially important in two classes of patients with astigmatism, first, those who are peculiarly sensitive to minimum degrees or minimum variations of the degree, and, secondly, those in which the axis of the astigmatism is oblique When these two conditions are combined the case presents the maximum amount of difficulty Prof Lindner has specialised in the teaching of retinoscopy, and we know of no book in which the niceties of the method are better explained and illustrated Especially is this true with regard to the determination of the angle in which he makes great use of the "astigmatic band" and the variations in its direction which are produced by a cylindrical glass placed at an angle different from that of the astigmatism For his methods the use of cylindrical glasses for the retinoscopy test is essential, and this will prove a difficulty in hospital clinics where, as a rule, the retinoscopy box contains sphericals only For learners the author strongly recommends an artificial model This book should prove of great value to readers who desire to do the best possible work as refractionists

MOSQUITO REDUCTION AND MALARIAL PREVENTION

BY J A. CRAWFORD, M B , Ch B. Edin , Captain, R A M.C , and B S CHALAM, L R C P. & S. Edin London Humphrey Milford, Oxford University Press 1926 Pp 102. 4s 6d

OF elaborate general treatises on malaria and its prevention there are enough, but these have been for the most part unintelligible to the layman In this book the authors explain in non-technical language the simple facts of practical anti-mosquito work in the field It is designed to be a suitable source of instruction for the manager of a tea estate, a sanitary inspector, or a non-commissioned officer of a regimental sanitary squad, and deserves to be appreciated by these Though this book is intended for those who have to combat the mosquito pest abroad, it may be informative to local authorities at home, to supplement the pamphlet published on this subject by the British Museum, to which the Minister of Health had occasion to refer in the House of Commons on March 1st It is obviously impossible entirely to avoid the use of scientific names, but it would have been better to describe the appearance and habits of larvivorous fish in English rather than to record them in doggerel Latin More attention might have been paid to the illustrations—the line-drawings of the developmental cycle of the mosquito are not very good A synoptical table of the differential characteristics of the Indian anopheline mosquitoes completes a useful work

MODERN CLINICAL SYPHILOLOGY

By JOHN H STOKES, M D , Professor of Dermatology and Syphilology in the School of Medicine, University of Pennsylvania With the cooperation of PAUL A O'LEARY, M D , WILLIAM H. GOECKERMANN, M D , the Mayo Clinic, LODEN W SHAFFER, M D , and CLEVELAND J. WHITE, M D London and Philadelphia W B Saunders Company 1926 With 865 illustrations and text-figures Pp 1144 55s

SO many text-books on syphilis have been produced in recent years, repeating the same facts in very much the same way, that it seems almost impossible that welcome could be found for yet another This book, however, differs from most of its predecessors in important respects, notably in that the reader gets the impression that the authors have had vast experience in the disease The views put forward are essentially those of Prof Stokes himself, while an account of alternative views would often have been useful, we can hardly regret the condensation which has enabled him to produce a readable work in one volume, which is nevertheless unusually complete If we have any fault to find with the book, it is with the presentation on so many pages of differences in symptoms and signs arranged in tabular form This is not an attractive way of setting out information, though it may be justified on the ground that this it saves space The sections dealing with neurosyphilis are outstanding in a work which has unusual merit

HEALTH

Resistance to Disease. a New Orientation Second edition By HARRY MERRALL, M B , Ch B London Williams and Norgate 1927. Pp 181. 6s

DR Merrall is impressed by the fact that the alimentary tract is more or less lined from end to end with lymphoid tissue, and he regards the leucocytes which, he says, are derived from that tissue to be one of the most important defences of the body against microbic invasion He believes also that intestinal toxæmia is the source of many ills and that iodine is an element necessary to salvation. He urges, therefore, that people should keep themselves healthy by seeing to any catarrh, and especially by swabbing the throat with iodine and glycerine, and by keeping their bowels open by belly exercises advantage in mortality in a life-table of parents only, due to the inclusion in the exposed to risk of people before the age at which they became parents—i e, before the age at which death can occur, the second is the selective factor involved in marriage, which again Dr Pearl does not distinguish from parenthood The genealogical material used as illustration suggests that it may consist of socially "better" lives than the general population, which would to some extent outweigh the declining death-rate To go back to the main subject of the book, we may hope that not many people will take seriously Dr Pearl's advice to "learn by precise experimentation what constitutes moderate drinking *for him*" Precise experimentation with one's own individual expectation of life is apt to be dangerous

The book contains a bibliography of some 270 works—a selection from a much larger one which the author hopes to publish later

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POPULATION PROBLEMS OF THE AGE OF MALTHUS

By G TALBOT GRIFFITHS, B A Cambridge University Press 1926 Pp 276 12*s.* 6*d*

THIS book is a critical and scholarly study of the factors affecting the birth-, marriage- and death-rates prevailing in England and Ireland at the time of Malthus—that is to say, between the years 1766 and 1834. The problems arising from the vital statistics of to-day are not considered, neither does the author draw any inferences bearing upon them from the period he discusses But in spite of this, the book has much more than an academic interest The cultural changes which took place between 1750 and 1850 were responsible for the initiation of that upward leap in the population of these islands which, though steadying itself in the latter years of the nineteenth century and in the present century, has since been maintained, and despite the fall in the birth-rate, is still in operation to-day This fall in the birth-rate, and the behaviour of the birth-rates of other European countries, have in recent years directed much attention to problems of population, which cannot be understood without the historical background which it is the aim of this book to provide. For the task which has here been so painstakingly accomplished, Mr Griffiths will earn the gratitude of the historian, both of economics and medicine.

Our knowledge of the dimensions of the population of Great Britain and Ireland throughout the eighteenth century is, and is likely to remain, incomplete But so far as it goes, it points to a fairly uniform increase in the birth-rate from the figure of 27 5 per 1000 in 1710 to that of 35 4 per 1000 in 1790, after which the rate steadily fell to about 32 per 1000 in 1836, the year of Malthus's death Far more dramatic than anything in the birth-rate, however, are the changes presented by the death-rate during these years The curve of the death-rate seems to have reached a peak of 33 4 per 1000 in the year 1730, when it was actually higher than the birth-rate; and then, except for a rise of 2 per 1000 between 1760 and 1780, to have plunged downwards till the year 1810, when, in the figure of 19 9 per 1000, it reached its lowest point for the indicated period Between 1730 and 1810—a period of 80 years—the birth-rate maintained itself within a margin of 2 per 1000 Between 1780 and 1810—a period of 30 years—the death-rate fell by 9 per 1000. The chief argument of this book is based upon a comparison of these rates, and is to the effect that, discounting immigration from Ireland, the sensational fall in the death-rate during Malthus's life was a more important factor in the increase of the population than was the comparatively small change in the birth-rate The prominence to-day given to the subject of artificial birth control in public discussion—a practice first popularised during this period not by Malthus (the author thinks that Malthus would have been opposed to it) but by Francis Place—has resulted in stress being laid on the birth- rather than the death-rate in causing the increase in population that characterised the period The facts adduced by Mr Griffiths seem to indicate that the stress has been laid upon the less important phenomenon

The various factors affecting the birth-rate by encouraging early marriages and fecundity in marriage—factors chiefly social and economic—are closely examined To medical men, however, the factors recognisable for reducing the death-rate will be of greater interest A chapter of some 50 pages is devoted to an analysis of the influence of increase in medical skill upon the fall in the death-rate Though medical skill can increase the birth-rate by eliminating factors like venereal disease and lead poisoning which diminish the number of births, it is upon reducing the death-rate that it exerts its most important effect During the period here reviewed medical teaching was organised all over Europe, and the foundations of our existing hospital and dispensary systems were laid Through improvements in sanitation and through the realisation—first occurring at this time—of the importance of cleanliness and ventilation, the incidence of fevers was much reduced In the earlier years of the eighteenth century fevers were responsible for one fifth of the annual mortality of London Deaths from puerperal sepsis were also much diminished through the same agencies But from the social point of view, perhaps, the most important event of all was the lowering of the infantile mortality-rate This seems to have been in large measure brought about by better feeding, the improved supply of milk and of fresh vitamin-containing foods being due to advances in agriculture and cattle farming which occurred at this time And not least important, epidemics of small-pox, which, throughout the eighteenth century had taken an enormous toll, especially of children, were much mitigated in severity by the introduction of vaccination

This book is a valuable piece of research into a phase of our recent past which the historian of the future will probably regard as critical in the development of the present age

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TRADE DERMATITIS

Schädigungen der Haut durch Beruf und gewerbliche Arbeit By K ULLMANN, in collaboration with M OPPENHEIM and J H RILLE Vol III., Sections 1–2 and 3–6, in two paper-covered volumes with articles by numerous writers and many half-tone illustrations in the text Leipzig L Voss 1925–26 Sections 1–2, pp 96, Sections 3–6, pp 308

THE increasing economic importance of industrial disease has created a general demand for statistical and other data The scope of these volumes is by no means limited to the suggestions conveyed in the title, and although skin affections occupy the major space, there are articles by various experts of interest to ophthalmic and dental surgeons, to factory inspectors, and medical assessors. Research workers will find some valuable information in the studies included in the paper on "cancer as a sequel" in industrial disease. This article is profusely illustrated and well furnished with a bibliography, and is an important contribution to a question much studied at the moment An article on prophylaxis is well conceived, and is followed by a summary of the regulations (German and foreign) which have been drawn up from time to time with that end in view There is a short dissertation on treatment

The classification of the various articles appears to be somewhat haphazard, and there is no evidence of a guiding hand or plan in their selection The work as a whole must be regarded rather as a compilation than a text-book, and an introductory paper or editorial preface would greatly improve a future edition.

THE LANCET.

LONDON: SATURDAY, MARCH 19, 1927

CHEMICALS IN BREAD

THE Departmental Committee on the Treatment of Flour with Chemical Substances has now presented its Report [1] The Committee was appointed in July, 1923, to inquire into the use of preservatives and colouring matters in food, and the final report on this general inquiry has already appeared[2], but in June, 1924, the reference was extended to include the question whether and to what extent the practice of treating flour with chemical substances is objectionable on grounds of health and whether it is desirable in the interests of the public health that the practice should be prohibited or restricted, and in the latter case what restrictions should be imposed—and the present Report deals exclusively with the supplemental reference This inquiry has been long and difficult A considerable part of it was necessarily of a technical character, commercial considerations have intervened in large measure, and the question has involved applied chemistry in a field where exact knowledge is difficult to come by and accurate deduction still more difficult to make The Bread Acts of 1822 and 1836 made it a legal offence to sell bread containing—apart from its essential cereal content—any ingredient other than common salt, pure water, eggs, milk, barm, leaven, potato or other yeast, and the Food and Drugs Act of 1875 penalised the addition to an article of food of any ingredient so as to render that article injurious to health, but there was a proviso in this Act permitting the addition of something, not in itself injurious to health, though required for the production or preparation of the food in a state fit for carriage or onsumption, and finally an amending Act of 1922 sanctioned the addition of any ingredient for the purpose of making flour self-raising, subject to the power of the Minister of Health to prohibit or restrict a particular ingredient Conformably to these legal provisions there has grown up during the last 20 years a widespread practice in this country of introducing chemical substances into flour for the purpose of bleaching or improving it The practice of bleaching arose, it appears, in response to the large demand amongst industrial and manual workers in the north of England and in Ireland for a specially white flour, a demand which would otherwise have resulted in disastrous competition from the naturally bleached commodity offered by the flour importers This type of addition may fairly be regarded as eyewash, being directed simply to the production of an appearance and not of a quality, but in regard to the so-called mprovers the milling industry claims for them an nhancement of the natural baking qualities of the lour so as to yield what is regarded as a good loaf Not all flours are capable of producing a loaf which rises well, is of a satisfactory texture, evenly aerated without large cavities or heavy streaks, and with thin, smooth, crisp, unbroken crust Millers claim that the deficiency of any flour in the qualities necessary for making a good loaf can be remedied by appropriate chemical treatment, with the result—as was recently set out in our own columns [3]—that people are supplied with a pure loaf of better flavour and greater digestibility and consequently higher nutritive value

The number of chemical substances at present in use is quite small, the list comprising little more than nitrogen or benzoyl peroxide for bleaching, acid calcium or ammonium phosphate and persulphates for improving, and chlorine or nitrogen trichloride for the dual purpose, known commonly as maturing The present Report takes as read a report presented to the Local Government Board 15 years ago by Dr HAMILL (which described in detail the structure of grain and flour and the processes of modern milling) and devotes its attention to the improvement of flour by chemical means, a practically new field now being developed by cereal chemists on the scientific as well as on the empirical side The Millers' Association have as the result of laboratory investigation developed widely the practice of building up blends of flour in which one unit makes good the defects of another, the chemical improver being brought in finally to correct any defect found in the baking test applied to the composite flour The hydrogen-ion concentration of the top grades of flour is greater than that of the lower grades and the improving, stated in chemical terms, may be a result of bringing this concentration to the appropriate level of about pH 5 5, associated probably with some oxidation of the gluten which there is good reason to believe occurs in two distinct forms The Committee does not doubt that the use of improvers has been a valuable aid to home millers in competition with overseas supplies, and their employment enables the miller to use any supply of sound wheat available, taking advantage of whatever comes to hand and producing a standard flour at the lowest prices This, it is admitted, may result in the more extended use of what millers call inferior wheats, although it should be understood that this commercial inferiority does not imply a lesser nutritive value Bleaching affords the miller the opportunity of eliminating the difference between higher and lower grades of flour from the same wheat, so that by appropriate treatment flour which would otherwise have to be sold as "household" can be lifted into the "patent" grade

After thus clearing the ground the final section of the Report deals with the health of the consumer, which was the avowed object of the inquiry It has been notoriously difficult to demonstrate that the addition of minimal quantities of a foreign ingredient to any staple article of diet is deleterious, and precisely for this reason a Government amendment has just been introduced at the Committee stage of the Sale of Food and Drugs Bill now before the House of Commons, the purpose of which is to save local authorities from having to prove in any particular instance that the presence of a forbidden preservative, or the excessive amount of a restricted preservative, is injurious to health The view of the Departmental Committee, frankly stated in so many words, is that flour should be a product of the milling of wheat, without the addition of any foreign substance, but after stating this principle they were confronted at once with the difficulty that to insist upon it would be to waste supplies of wheat and to raise the price of flour So long as a great demand exists for very white breads, they admit that some form of bleaching process must be permitted Whatever may have been alleged to the contrary, the Committee regards the majority

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[1] The members of the Committee were Sir H C Munro hairman), Prof W E Dixon, Sir A D Hall, Dr J M Hamill, r O Hehner F I C (replaced later by Mr P A Ellis Richards, I C), Prof F G Hopkins, Dr G R Leighton, Dr A P Luff, r C Porter, Mr G Stubbs, F I C, with Mr A M Legge, ecretary. Ministry of Health, 1927, H.M. Stationery Office, 6*d*

[2] THE LANCET, 1924, ii, 929.

[3] THE LANCET, 1920, ii, 1038

His advice has evidently proved so attractive that this revised, enlarged, and cheaper edition of his book appears two years after the original version It is difficult to understand why he should begin with such a proposition as "our conception of the occurrence and development of disease is in the main erroneous," and why he should call his book "a new orientation " It is a pity, too, that his good, practical suggestions should be backed up with a physiology and pathology which are too often questionable. But we can well imagine that there is a common type of lay reader to whom he will appeal with much success and improvement in healthiness, and, since other opinions are to be had in times of trouble, he is not likely to lead anyone very far astray

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RADIOTHERAPY

La Roentgentherapie des Epitheliomas Cutanes et Cutaneomuqueux By Dr GEORGE GIREL Paris Masson et Cie. 1926 Pp. 301. *5s*

THIS book gives a detailed account of the methods evolved by Dr J Cost, of Lyon, for the radiotherapeutic treatment of malignant diseases of the skin This method, as distinct from those usually employed, may be summarised as the use of rays of medium wave length, unfiltered and in massive doses given at a single application An average dosage would be 25-30 H in a single sitting, using a 6½ in gap, no filter, at a distance of 22 cm with 2 ma going through the tube This dosage produces, the author states, a "radio-epidermite " as distinguished from a "radio-dermite " or reaction of the third degree followed by ulceration and necrosis He claims 98 per cent of success, and complete cicatrisation in about one or two *months after the date of treatment* A long list of cases is given in detail, from which it appears that some burns were produced This, *however, is attributed to a particular tube* which was old Pilon, ordinary and 30 ma Coolidge tubes were used The method seems to us drastic, and the risk of serious X ray burns unduly great ; no doubt in the hands of its formulator it is successful

In the second part of the book practical details are given to show that the method can be carried on with the simplest of apparatus The remaining space is devoted to a histological study of the tumours treated and to their classification

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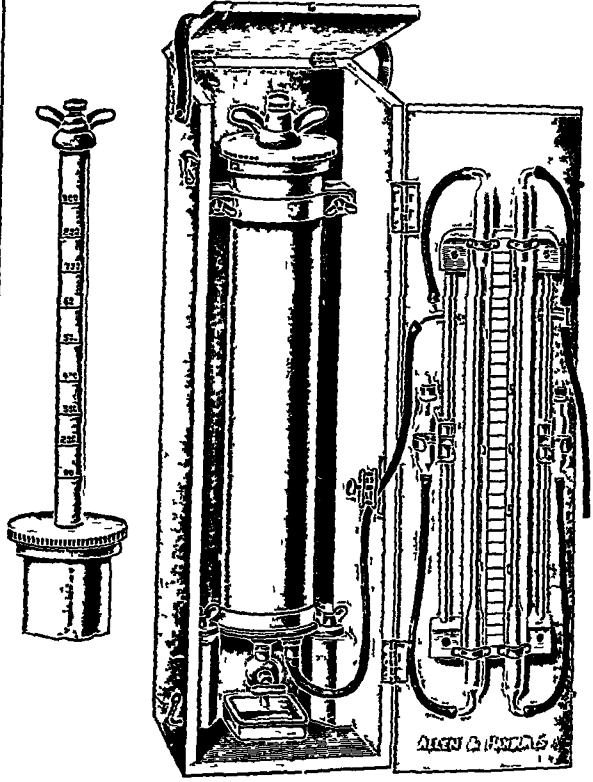
New Inventions.

AN IMPROVED PNEUMOTHORAX APPARATUS

THIS *artificial pneumothorax apparatus was* suggested and designed for me by Miss V Holmes, B Sc (London), to overcome two of the shortcomings *of existing instruments—namely, fragility* and the necessity for manipulation during the operation to maintain a constant flow of air at even pressure

The ·apparatus consists of a carefully ground brass cylinder topped with a flat cap The lower end is filled with a sump in the shape of an inverted cone, with a stop-cock at the extreme *lowest point, and a nippled opening* at a slightly higher level The cylinder is fitted with a hollow brass piston, to which is mounted a hollow piston rod whose lumen *is continuous* with that of the hollow piston The piston has circular grooves, and from the bottom of these grooves holes are bored through to its central chamber The top end of the piston rod is fitted with a simple device for locking it to the cylinder top when the piston is at the bottom of its stroke, and also with a knurled screw to seal the open end The piston chamber is filled with castor oil via the piston rod, *and this oil flows* into the piston grooves through the holes mentioned above This gives a perfect airtight fit, and at the same time permits the *piston to fall* smoothly but quickly by its own weight The cubic content of the cylinder is about 700 c cm and the piston rod is graduated to show the cubic content of air at atmospheric pressure at any position of the piston From the nippled opening in the sump a rubber tube runs to a metal tube in the box lid, which metal tube has two side openings connected by rubber tubes with the manometers A further rubber tube passes from the metal tube to the patient The flow of air between the cylinder and the metal tube in the lid is controlled by a simple screw clamp

To operate the screw clamp is closed The stop cock *in the sump is opened* (any excess of castor oil in the sump will then drain out) and the piston is raised to the top of the cylinder , the stop-cock is closed, and the piston allowed to settle, compressing the *enclosed air* The pressure exerted by the piston is equal to about 50 cm of water The rubber tube leading to the patient is fitted with a needle and introduced , the screw clamp is released until it is seen *from the movements of the piston rod that air is flowing* at the desired pace The pressure at the needle point varies with the rate of flow, and can be set at any pressure from ¼ cm of water to the full capacity of the manometers, according to the amount the screw clamp has been released The quantity of air used can be read from the piston rod graduations



Any form of manometer can be used The one illustrated is a copy of that used on Dr Parry Morgan's old apparatus The manometer nearest the cylinder is filled with a mixture *of oil and chloroform of sp gr* 1000, the one nearest the patient with coloured water During the operation, the water manometer fluctuates freely with the patient's respiration, showing the pressure at the needle point The oil manometer scarcely fluctuates with respiration, and before the screw clamp is opened is set to the patient's mean intrapleural pressure, and continues to show this throughout the operation, provided *that* the oil used is not too viscid and the air is not introduced *too* rapidly If another clamp is introduced on the rubber tube between the cylinder and the *screw clamp*, and a needle is fitted at the patient's end, the screw clamp can be so adjusted that any pressure can be maintained at the needle point , the second clamp can then be used for starting and finishing the operation This method is useful for induction, as it allows the gas flow to be controlled instantaneously, or when a series of refills are to be done, as it saves the time needed for constant *readjustment of* the screw clamp

If the instrument is used as illustrated, it is unnecessary to touch it at all during the operation, except *to* open the screw *clamp at* the start, and to close it when sufficient air has been introduced, and the operation need not be interrupted for pressure readings, as the mean *intrapleural* pressure at any moment is visible on the oil manometer

The instrument has been made for me by Messrs Allen and Hanburys, Ltd , *Wigmore-street*, London, W.

R C WINGFIELD, M.B , B Ch Oxf , M R C P Lond.

crepancies in the incidence of nervous and venereal diseases being accounted for probably by differences in nomenclature

We note that the report appears to lay the responsibility upon the medical profession for the proper distribution of practitioners, but it seems to us that this is a matter in which the public should take the initiative Throughout the United States the growth of population in the towns in comparison with that on the countryside—a position the embarrassments of which we know very well in this country—has led to the fact that there are many localities which are not properly staffed by medical men as well as devoid of institutional and nursing amenities Notably it is the older doctors who resort to or who remain in the country, a fact which had been elicited by Dr W A PUSEY in a study of 283 rural counties in 41 States, which he published in the *Journal of the American Medical Association* This investigation indicated the average age of physicians practising in these country districts to be 52 years, and the average period which they remained in practice to be 26 years This study brought out further that only 9 per cent of the 4410 physicians practising in these counties were graduates of the last ten years, and that no recent graduate had gone into 35 per cent of these counties during the same period A recent study of conditions in the State of Michigan showed that in 1925 the largest number of physicians at any one age was in the period of 50 to 54 years, whereas in 1914 the largest number of any one age was in the period of 35 to 39 years The figures are revealing as to the position in the vast Transatlantic countries, in Great Britain it is only faintly reflected, as only in a few areas does country practice mean the extreme isolation indicated in Dr PUSEY's inquiry There is reason to think that with us the position, so far as it existed, is righting itself under the National Insurance Act

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THE MANAGEMENT OF PNEUMONIC PLAGUE EPIDEMICS

WHATEVER Government rules China that country must long be a source of anxiety, from the sanitary point of view, because North Manchuria still harbours the Siberian marmot or tarbagan, an animal peculiarly susceptible to natural infection by plague The pneumonic plague epidemics of North China can all be traced back to this small rodent and to the hunters who trap it for fur In the great Manchurian outbreak of 1910–11 Dr. Wu Lien-Teh (better known in Europe as Dr. W L Tuck) played a memorable part, and the lessened severity of the two later epidemics was due largely to the combative measures adopted and directed by him, and to the standing anti-plague organisation whose inception and maintenance owe so much to his efforts Pneumonic plague is not confined to North China; it is perhaps even more rampant now than in the past, and Dr. Tuck's latest contribution[1] *to the literature* is welcome It is the fruit of an unrivalled experience of three great epidemics and of a thorough exploration of what is already on record The result is an authoritative work It is dedicated to the known and unknown who have sacrificed their lives fighting or investigating pneumonic plague, and in the last 14 years most of these must have fallen actually by the side of Dr Tuck

Not rarely pneumonic plague has been frequent in newly invaded areas, but has later become inconspicuous in the same foci, this was noticed, for example, during the Black Death pandemic It is by no means clear how an outbreak starts Racial susceptibilities cannot play any important rôle, but climatic conditions may enhance the susceptibility of the lungs, aggravate the bad social conditions which impair individual resistance, and by leading to overcrowding, increase the chances of contagion There may even be a special character in the epizootic The nature of the epidemic itself is determined by a chain of circumstances, perhaps peculiar to each locality and community Although it is true that an outbreak of plague pneumonia may, of its own accord, decline and disappear, this is no excuse for neglecting stringent measures to suppress it Treatment is difficult, for the infection is one which, in its selection of the lung for primary attack, is too rapid and severe for any remedy yet discovered, in the overwhelming majority of cases of manifest plague pneumonia immune serum has failed to be of benefit In view of the difficulties, an epidemic must be fought not by one invariable scheme, but by a combination of methods adapted to the locality, the season, and the particular traits of the afflicted populace. For personal prophylaxis the best measure is the wearing of a protective mask Its use dates back to 1348 and the Black Death in Europe, at which time it evidently became widely known that infection was directly transmitted through the air. In the three Manchurian epidemics a mask of absorbent cotton-wool, tied over mouth and nose by a many-tailed gauze bandage, was evidently efficacious, it is probably impervious to cough droplets, though tests have proved that it lets through the smaller drop obtained by artificial spraying A hood of heavy flannel cloth tied at the neck and fitted with mica window withstands far severer tests and is not more inconvenient or uncomfortable than the gauze cotton-wool mask Everyone in any epidemic area is obliged to avail himself of this protection all the time, whatever the duty or common task What more obvious or safer insurance can there be against a coughing neighbour? The occurrence of many laboratory fatalities imposes it even on the secluded pathologist staff. Personal protection by immune serum, or plague vaccine, or both, is less certain, though these measures undoubtedly lengthen the incubation period At least 100 c cm of the serum must be injected as soon as possible after exposure to infection, and this dose will confer some passive immunity for possibly as long as two weeks Thousands of people may need injection and the cost of serum is high Experimental data, says Dr Tuck, are but little in favour of vaccine In natural circumstances, however, the infective dose is rarely so massive as that given by inhalation to animals in experiments, and in the pneumonic epidemics plague vaccine seems to have given better results than might have been expected on theoretical and experimental evidence It is not to be discarded in spite of the grim fact that in epidemics some of the fully vaccinated sanitary personnel have succumbed to plague pneumonia

General prophylactic measures are, at best, only palliative Pneumonic plague is secondary to human bubonic plague, which in turn arises from plague in rodents, and the preventive measures should ideally be directed against these two precedent infections The different branches of the anti-plague organisation should, in Dr Tuck's opinion, be directed by a single chief medical officer The coöperation of medical practitioners is readily obtained, whilst that of the population has to be sought by educational measures Cases must be detected promptly—which means house-to-house inspection—and isolated in hospitals or camps Contacts must be placed under strict medical inspection in segregation quarters for at least seven days, or for ten days if they have been vaccinated or protected with serum, so that the incubation period may be prolonged It is a natural instinct to flee from plague-ridden localities and flight has been recommended from Biblical times; Cardinal Wolsey followed his own advice for time of plague—to change quickly to fresh and purer of added substances as foreign to flour, for the phosphorus and sulphur found in the ash of untreated flour do not seem to be present in the form of phosphates or sulphates *in the flour itself* They suggest that chlorine, besides combining with carotin to form a colourless addition compound, does also combine to some extent with the oil of flour and may in so doing injure the nutritive value of the gluten by the entrance of chlorine into the tyrosin and tryptophane groupings Direct experiments of feeding rats on flour treated with chlorine or nitrogen trichloride were inconclusive, but judging by all the evidence before them they regard both chlorine, whether free or combined with nitrogen, and benzoyl peroxide as undesirable additions to flour They are not prepared to recommend the complete elimination of the bleaching agents and improvers now in use, but they think it should be made conpulsory on manufacturers to declare to purchasers the precise ingredients of their wares, and equally compulsory on millers to inform their customers whether their flour has undergone a process of chemical bleaching or improving or both, and if so with what substances and in what proportions There are bakers, the Committee state, who wish to know the nature of the materials they are using, and who want flour, and not a mixture of flour with something else Finally, they welcome the possibility shown in their inquiry of improving flour by physical rather than chemical methods, and are impressed by the success which has already attended these experiments on a commercial scale Before proposing these very modest limitations on the liberty of the miller to add to flour what chemical substances he will, the Committee had ascertained that in Australia and New Zealand the artificial bleaching of flour is prohibited and bread may not contain any foreign mineral substance other than common salt Switzerland also forbids bleaching Canada has, however, recently recognised the practice of bleaching with a minimal amount of nitrogen peroxide if so stated when the flour is sold, and the United States of America, as well as Switzerland, have sanctioned the addition of limited amounts of unobjectionable salts serving solely as yeast nutrients The Report is now open for the consideration of a public, every member of which consumes bread in larger or smaller degree, and is affected in mind, body, or estate by the practices which the Committee was appointed to investigate

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[1] A Treatise on Pneumonic Plague By Wu Lien-Teh Published by the League of Nations Health Department 1926 Obtainable in Great Britain from Constable and Co

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MEDICAL EDUCATION IN THE U S A.

MEDICAL education in the United States of America is regulated largely by the specifications and rules of several different agencies, one among which, the Association of American Medical Schools, has devoted itself particularly to the problems of the ideal curriculum and to the inspection of medical schools A committee of the Association in 1925 called together a group of persons representing general and scientific education, the medical profession, and the related sanitary interests, and organised a Commission on medical education That body has now issued a report, derived from a preliminary study of some of the general questions which have been considered, promising that, as more material is assembled and other studies made, additional reports will be published The first document is so practical that its sequels will be looked for, and the medical schools having part in the Association, as well as the Rockefeller Foundation, the Carnegie Corporation, and the American Medical Association, may be congratulated on finding the financial support for such useful endeavour The initial stage of the labours could not have been easy, for the Commission in certain directions pre supposed an inspection of medical schools, and not only of the examinations instituted by the various qualifying bodies, and to bring schools up to a certain level may be harder than to evaluate their respective efforts by criticism of the different methods of testing Further, the local adaptabilities for medical practice in the United States have to be borne in mind, for, despite similarities of pattern that may exist in many localities, each State has developed its own requirements, which have exerted a considerable influence both on the domestic details of the curriculum and on the legal status of the schools

The report commences by a shrewd definition of the proper objective of medical study and a fair summary of this section would be as follows The medical training given to the student should be sufficiently broad, while perfectly sound, to serve as the groundwork for subsequent development, it should provide students with the training needed for competence to begin practice, while preparing them also to make general or special use of their developing clinical insight and experience The sections of the document dealing with the various circumstances which determine the chances presented to the medical profession of doing their work in the most efficient way and for the good of the public, follow lines which are familiar to all who have studied analogous problems in this country, but the action of the Commission here has been thoroughly practical To obtain information on the demands for medical services, the coöperation was enlisted of 500 recent medical graduates practising in communities of 50,000 or less in a group of 24 States and two Provinces A study of the activities of these men has revealed that 90 per cent of the cases requiring treatment could be adequately cared for by the practitioner who had received the medical training that is provided in those States through the medical licensing boards The patients presented themselves in the rough numerical proportion of 55 per cent at the doctor's residence, 35 per cent were domiciliary visits, and 10 per cent institutional cases As might be expected, three-quarters of the cases visiting the doctor had minor surgical injuries, while the domiciliary visits were in respect mainly of infections of the respiratory tract, medical conditions, zymotics, and obstetric patients, only 10 per cent falling under more special designations Further light is thrown on the health needs of the American population by an analysis of the defects found through recruiting statistics A report of the Surgeon-General of the United States Army has analysed the records of 2,750,000 of those men, they reveal that 46 per cent had defects of one sort or another A more detailed analysis of this enormous figure would show, of course, that many persons categorised as "having defects," would exhibit no immediate need of medical attention, while in many the time would have gone by for fruitful treatment But even so, the residue will be very large, and the Army figures confirm the necessity existent in the States for many doctors properly standardised and properly distributed An interesting comparison is made in the report with medical practice in Great Britain, for the demands on American and Canadian practitioners are contrasted with a survey of the causes of illness which led persons to consult practitioners under the National Insurance Act, as set out in a recent report of Sir GEORGE NEWMAN The British, American, and Canadian figures have close general resemblance, the dis to see binocularly is sufficient to prevent the child from squinting; but if the fusion-sense is absent or badly developed, the mechanism which coördinates the lateral eye-muscles may easily be thrown out of gear As most children are hypermetropic the squint is generally convergent, but it may be divergent. In either case when a squint is well established the attention of the child is so concentrated on the image in the better eye that the one formed in the retina of the worse eye is not attended to at all. It is "suppressed," and if this suppression is allowed to continue the eye often becomes incapable of any useful vision. It is this fact that renders it so essential that all squints in children which are constant should be treated without delay—not by operation in the first place at any rate. but by glasses and if necessary by forcibly suppressing the image not of the squinting eye but of its fellow If one eye is blind from infancy it may or may not squint If it does the squint is generally convergent at first. but in later life may become divergent Similarly, if both eyes are blind from infancy they may or may not squint, but in this case the reflex stimulus to the coördinating mechanism having never been in action the latter is so far put out of gear that there is almost always nystagmus If. on the other hand, as in those who become blind after early childhood, the coördinating mechanism has once been firmly established. it almost always continues to function, even in the absence of the sight of either eye Cases of optic atrophy seldom either squint or have nystagmus In myopia a squint is usually divergent but as myopia is almost never present in infancy this is only seen in adults as a rule A single blind eye, whether myopic or not. often diverges in adult life, but in children will as often be found to converge

THE ÆTIOLOGY OF ADDISONIAN ANÆMIA

IT is well over 30 years since Herter postulated a relationship between the abnormal activities of *Bacillus welchii* in the large intestine and the occurrence of pernicious or Addisonian anæmia So completely has his work fallen into oblivion that in recent and authoritative English and German text-books on diseases of the blood no mention of the theory is to be found · and in this country at any rate, the presence of hæmolytic streptococci in the duodenum attracts a large share of the attention of those who look upon the disease as an infection. The work of Cornell[1] in Canada, published two years ago, indicated an attempt to rehabilitate Welch's bacillus as the only source and begetter of Addisonian anæmia and have inspired efforts by several other investigators to establish a relationship Thus Moench, Kahn, and Torry[2] have shown that *B. welchii* are present in the intestines of sufferers from the disease in larger numbers than in those of normal persons and by injecting into monkeys small quantities of toxin derived from the bacillus, Kahn and Torry[3] were able to produce a blood picture closely resembling that of Addisonian anæmia.

Following the lead of Cornell, who showed that it is possible to establish a chronic *B. welchii* infection in rabbits, Reed, Orr and Burleigh[4] working at Queen's University, Kingston, Canada, have observed the blood changes produced by the activity of this organism in the tissues of the host By using cultures kept for five to ten days in the ice-chest, and injected hypodermically or intramuscularly into rabbits, they found that they were able to produce local lesions from which complete recovery frequently took place The inception of the infective process was characterised by constant and well-marked changes in the blood picture The notable change was a gross anæmia in which the red cells might fall as low as 1.400,000 per c mm, and as this was not accompanied by a corresponding decrease in hæmoglobin the colour-index was relatively high. Some poikilocytosis was also observed, and a high degree of anisocytosis Averages were taken of the size of the red cells, and curves were plotted showing the relative distribution of cells of various sizes These curves differed grossly from those found in normal rabbits and approximated in their shape to the curves shown by Price Jones[5] to be characteristic of Addisonian anæmia Films of blood from the infected rabbits further showed nucleated forms many of which resembled the megaloblasts which are usually regarded as one of the most typical features of the blood picture in human pernicious anæmia This however, is the full extent of the resemblance between the blood of the infected rabbits and that found in the disease and the rabbits showed a leucocytosis instead of the leucopenia which might have been expected As no differential counts are recorded it is impossible to say whether they had a relative lymphocytosis

These various investigations seem to show that in experimental animals the toxin of *B. welchii* can be made to produce a blood picture characterised by a high colour-index, and a Price Jones curve resembling that of Addisonian anæmia This, however, is far from proving that *B welchii* is the cause of the disease. The term ' Addisonian anæmia " in the present state of our knowledge merely denotes a symptom complex which may have many causes It is recognised. for instance, that infestation by *Bothriocephalus latus* will give rise to the characteristic blood picture, but this does not mean that all patients having this blood picture are suffering from such infestation, and the same holds true for Welch's bacillus None the less, this is a matter which will obviously repay further investigation In view of the well-known fact that anæmia due to hæmorrhage will produce alteration in the size of the red cells in rabbits, it is probably desirable that such work should be conducted on some other animal, and since highly potent preparations both of *B welchii* toxin and antitoxin are now readily obtainable, no advantage is any longer likely to be gained by injection of the living organism.

A BELGIAN HEALTH DEMONSTRATION.

THE idea of health demonstrations originated in America where the best-known, the Framingham Antituberculosis Demonstration consisted of an intensive public health campaign within a limited area aimed at the improvement of public health and especially at the reduction of the tuberculosis mortality-rate From the specialised demonstration America has passed on to the general public health demonstration, and at the present time the Milbank Foundation, with some millions of dollars at its disposal is directing three simultaneous demonstrations—one in a rural area one in a small manufacturing town and one in a New York district. Such demonstrations, although their primary object is educational, are also of the greatest interest from the experimental point of view, for the demonstration area becomes, as it were, a laboratory of applied public health. and the research work carried on is likely to yield data which might otherwise take years to collect It was inevitable that the health demonstration idea should. sooner or later, penetrate to Europe. To the Belgian Red Cross belongs the honour of having staged the first European demonstration, and the report just published of the Jumet Health Demonstration[6] has thus a pioneer interest. Jumet is a small industrial town between Brussels and Charleroi with 30,000 inhabitants. The demonstration which is still in progress was undertaken in 1923 by the Belgian Red Cross in coöperation with the League of Red Cross Societies, and with the hearty support of the local authorities and of the national air. Evacuation of the people is nowadays done to remove them from insanitary and overcrowded dwellings and bring them to camps where better hygienic conditions can be arranged, and where medical inspection can be carried out as though all of them are contacts. Experience has fully confirmed the value of these measures; properly conducted, they have always led to a quick decline of the epidemic. Churches, schools, and theatres must be closed. Cordons within the affected area to limit infection to that area may assist, but the plan of shutting up patients or contacts, or both, within their own houses is too cruel to deserve a place among modern methods of prevention. It is of interest to recall, however, that in 1348 the Pope and his household escaped the Black Death by closing themselves up in the Palace at Avignon. Disinfection should be carried out with discretion and common sense, for little remains to disinfect once the coughing patient, the main source of infection, has been removed. Dead bodies should be cremated, for they teem with plague bacilli, and these in suitable climatic conditions retain life and virulence for long periods. Pneumonic plague spreads not only creepingly from house to house, but also by jumps; someone from a stricken community while incubating plague may travel to a distant place and there cough in a neighbour's face. An efficient cordon should prevent this kind of spread, but some control of traffic from the infected area has to be instituted. It is clear that the methods now available for the suppression of the disease do not guarantee its speedy disappearance. A more timely and universal detection will prevent widespread epidemics, and must be relied on until such time as bubonic plague and rodent epizootics can be eradicated.

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[1] Can Med. Assn. Jour, 1925, xvi., 26

[2] Jour Infect. Dis, 1925 xxxvi. 425

[3] Proc Soc Exp Biol and Med. 1925 xxiii., 8.

[4] Can. Med. Assn. Jour, 1926, xvi, 525

[5] Jour Path. and Bact, 1922, xxv, 487

[6] La Démonstration d Hygiène de Jumet, Croix-Rouge de Belgique, 1927 Paris: Ligue des Sociétés de la Croix-Rouge, 2, Avenue Vélasquez. Pp 120 2s

Annotations.

"Ne quid nimis"

THE REFUTATION OF A SCARE

It appears that wide circulation is being given in America to statements likely to give rise to the belief or the fear that vaccination against small-pox may cause syphilis. There is available in the public services a mass of direct evidence in refutation of this idea, and the three Directors-General have considered it their duty to issue a public statement that syphilisation as a result of vaccination does not occur. In the days of arm-to-arm vaccination cases of syphilis following inoculation with human vaccine did occasionally arise, although extremely rarely. Syphilis, however, being confined in nature to the human species alone, the possibility of its transference by vaccination was entirely done away with as soon as the use of calf vaccine became universal. Since 1917 the United States Army has vaccinated approximately 4,700,000 members of its personnel, the United States Navy has vaccinated approximately 950,000 of its personnel; and of these 5,650,000 persons not one developed syphilis as a result of vaccination. In not one of them was there ever any suspicion of syphilis in connexion with vaccination. During this same period the United States Public Health Service vaccinated 2,918,748 persons in carrying out its quarantine, immigration, and hospital work. While the Service has not always had the opportunity of following up these vaccinations, as is carefully done in the Army and Navy, no one has ever alleged that any particular individual vaccinated by the Public Health Service has contracted syphilis as a result of vaccination. During the past ten years more than 2,000,000 persons, including school-children, have been vaccinated by State and local health authorities in cooperation with the United States Public Health Service, making a grand total of 10,568,748 vaccinations recorded by the Government medical services, and not one of the undersigned has ever received an allegation or a statement charging that any particular individual of this number has contracted syphilis as a result of vaccination. In fact, there has never been reported anywhere a case of syphilis attributable to vaccination following the use of bovine small-pox vaccine.

Small-pox vaccine is a standard medicinal product, the quality of which is prescribed by the United States Pharmacopœia, and as such is subject to the provisions of the Pure Food and Drugs Law. Furthermore small-pox vaccine, together with other vaccines and serums for human use, has been deemed of such importance by the Government that its production for sale within the jurisdiction of the United States has been under the special protection of an Act passed July 1st, 1902, antedating even the Pure Food and Drugs Law. Under this law all establishments producing small-pox vaccine for inter-State sale must be licensed by the Secretary of the Treasury upon the recommendation of the United States Public Health Service, and the production is controlled by regulations drawn up by a board composed of the undersigned. These regulations provide for repeated inspections of the producing laboratories, for proper labelling, and for all safeguards which may be thrown about the making of such an important product. At present even the placing of the vaccine in the small tubes and the sealing of these tubes is required to be done in such a way that no hand, even though sterile, touches the vaccine. Repeated examinations of the product, for safety, are required. This vaccine it is stated, was used in the vaccination of the millions mentioned, and is exactly the same as that used by doctors in private practice in the vaccination of the general public throughout the United States. The statement is signed by M. W. Ireland, for the U.S. Army, E. R. Stitt, for the U.S. Navy, and H. S. Cumming, for the U.S. Public Health Service.

SQUINT

It has been said that no baby is born with a squint, and this is roughly true, inasmuch as in the absence of either a deformity of the skull or an anatomical malformation of the eye-muscles—both very rare conditions—the visual axes of the two eyes are always approximately parallel at birth. The cerebral centres for the coordination of movement of the two eyes are sufficiently developed to keep them approximately parallel, as a rule, but during the first few weeks or months of life this approximation is by no means exact, and young infants are frequently noticed to squint occasionally, a circumstance that need cause no anxiety unless it persists. During this period the infant is literally learning to see. If the visual axes of the two eyes are not directed towards the same point of any object—say a rattle—it appears double, but the infant soon learns by the sense of touch that he has only one rattle, not two, and by instinct brings the muscles of his eyes to confirm what his hands have told him. The power of binocular vision, however, is as yet far from being fully acquired. The images of any object towards which the two eyes are directed are slightly different because they are formed at different angles. The power of combining these two images into a perception of the object is known as the fusion-sense and it takes years to acquire. Some children, and particularly members of some families, never acquire it, and in its absence various factors sometimes combine to cause a squint. The close association between convergence and accommodation is the best known of these factors, so that hypermetropic children whose fusion-sense is defective are peculiarly liable to it. Not all squinters are hypermetropic, however, and another frequent factor in the causation of squint, of at any rate equal importance, is an unusual call on the nervous system such as a sudden fright or an attack of measles. If the fusion-sense is already well developed the unconscious effort as if the principles underlying the most important of the recommendations of that Commission have never been accepted. Detention, such as is available for the dangerous paranoiac is necessary also for the dangerous and criminal defective; certification too, has its value in dealing with the neglected the abandoned and the cruelly treated: but it is unfortunate that these methods should be considered suitable also for the greater number of aments in need of institutional treatment who do not fall within these categories, for mentally defective children leaving school and the helpless and harmless offspring of poor but well-intentioned and conscientious parents. The humane public is unwilling to look upon mental deficiency as a crime. They have got beyond such views. But if experts appear to maintain that the first requisite in dealing with this serious medical condition is the goodwill of a magistrate the old impression is produced, with the unfortunate suggestion that no more hopeful ideals can be followed.

SUDDEN DEATH AMONG CONSCRIPTS

SUDDEN deaths at the extremes of life when the subjects are very feeble or frail are not so uncommon as to cause surprise but the sudden deaths of men in the army in peace time men of military age men accepted and retained as fit for service these painfully surprise and shock their associates and their relatives awaken suspicions of carelessness and often cause the medical officers of the units concerned anxious searchings of heart. Each such case occurring in the French Army in a regiment and not in hospital is made the subject of a special report. and it occurred to Major X M Cristau that a discussion of the 145 of these reports received in the last seven years (1919-25) might be of use. and might even lessen their number in future. His paper appears in the *Archives de Médecine Militaires* (vol lxxxv p 455). Cases of sudden death fall he tells us into four groups first. those of patients in hospitals whose diseases develop unexpectedly; second. those of men whose complaints during life have been slight or vague: third those of men who have made no complaint in life. but the cause of whose death is discovered at the post-mortem examination. and last. those of patients who made no complaint in life and in whom examination of the body after death has failed to disclose a cause. Some of them (38) occurred in barrack infirmaries or when the men were thought so little ill that they had been left merely "on the sick list." Thus a patient had been a week under treatment for inflammation round an erupting wisdom tooth and was recovering when œdema of the larynx set in and he suddenly died. Ninety of the deaths happened when the men were on duty on leave or in their barrack-rooms asleep without disturbing the men beside them. Thus a Malagasy. on guard did one tour of sentry-go but when he was being called for his next he was found to be dead (of double pneumonia); another of that unit died similarly. but in in his barrack-room. a week later. Such cases should be examined after death but in 40 of those reported. autopsy was refused on account of religious scruple or objection on the part of relatives. Infectious fevers. either in the stage of invasion or by complication caused 31 deaths, 18 due to pneumonia, including 4 of acute œdema. typhoid caused 6. one fatal by hæmorrhage, meningitis 3 2 being tuberculous and of the malarial cases 2 were due to rupture of the spleen. Cardiovascular lesions. apoplexy. embolism. ruptured aneurysm accounted for 25; pleurisy. without or with adhesions perhaps tuberculous caused 22 (there is a special belief in France that pleuritic adhesions explain sudden death though Dr Cristau does not hold it): no cases are attributed directly to renal disease. but 7 to pulmonary œdema secondary to heart or kidney lesions; 5 are ascribed to alcohol. which brought vomited matter into the larynx. Five are attributed to primary inhibition of the heart. Dr Cristau who complains of the human tendency to give a definite diagnosis without absolute certainty, quotes the only case that he thinks must have been due to cardiac inhibition: it happened to a man who had never complained of illness just as he had fired his rifle on the range. A very thorough post-mortem gave no other definite suggestion; all the organs were slightly enlarged but with no definite change. only the heart was empty and dilated. In some cases it is difficult to state the cause of death exactly because there seem to be possibly two or more—e.g. pulmonary infarction with endocarditis; in others not even one probable cause can be found. A prisoner had complained vaguely of constipation and died at the latrine; except for a large sarcoma at the bifurcation of the abdominal aorta no lesion was found. nor was there any hæmorrhage. Of what, then did this man die? That these cases of unexpected death may be the fewer the author advises the careful examination of all persons who complain of even seemingly trivial illnesses. As we read his cases. it is clear that several would not have been seen in a voluntary army. for many men must be taken for service in a conscript army who would not be accepted as volunteers. It should also be noted that of 22 sudden deaths reported in detail eight were from native troops.

THE RETICULATED RED BLOOD CELL.

THAT certain of the red cells in human blood show peculiar filamentous structures when coloured in the fresh state by methylene-blue or any of the so-called vital stains has been recognised since the application of these staining methods to the blood by Ehrlich at the end of last century. It became apparent from the observations of various authors that the relative proportion of the reticulated to ordinary red cells varied according to the activity of the blood-forming organs. In the normal human subject reticulated cells constitute about 1 per cent. of the whole number but in such conditions as blood regeneration after hæmorrhage this proportion may be greatly increased. In fact the reticulated red cell count probably offers the surest indication of the state of activity of the hæmatopoietic system at any given time. This being the case it is somewhat surprising that the procedure does not at the present time occupy a more prominent place in the armamentarium of the clinical pathologist. Dr. Dameshek's recent publication[1] of routine reticulated red cell counts undertaken in the Boston City Hospital, reveals their value as an index to the activity of the bone-marrow. In pernicious anæmia the reticulated cells usually form about 5 per cent of the whole—a fact which accords with the generally accepted view that pernicious anæmia is essentially a regenerative anæmia. A rise in the percentage of reticulated cells was found to be inseparably associated with the approach of a remission while the persistence of low percentage was of bad prognosis. In aplastic as opposed to pernicious anæmia. reticulated cells are almost absent. their proportion falling far below the normal of 1 per cent. Dr Dameshek makes some observations upon the relationship of reticulated cells to platelets. He found that increase of platelets in the circulating blood is usually accompanied by an increased percentage of reticulated cells. In conditions such as the thrombopenias associated with splenomegaly. the principal clinical feature of which is purpura. he found that so long as the thrombopenia persisted the reticulated count was low. With remission of the thrombopenia. however. whether occurring in course of nature or after removal of the spleen the reticulated count at once rose above normal. One result of his investigations was to bring to light a point in the differential diagnosis between Banti's disease and hereditary hæmolytic anæmia. In the former the reticulated count is either normal or not greatly increased: in the latter the public health organisations A health centre was established in a specially erected wooden pavilion, a public health nursing service was organised, and a number of clinics were opened The National Child Welfare Organisation started a clinic for expectant mothers, and another for children between 3 and 6, in addition to the babies' clinic and the school medical service which already existed. The National Anti-tuberculosis, Antivenereal and Mental Hygiene Leagues also lent their support and organised local clinics A dental hygiene service was opened. The local Red Cross undertook the propaganda, organised a local Junior Red Cross Section in the schools, and obtained the support of teachers, clergy, employers, workers, mutual benefit societies, and the press The staff of the demonstration consists of eight doctors in practice, three dentists, one head nurse, five visiting nurses, one nurse doing clerical work, and one social worker The report states that out of the 14 medical practitioners at Jumet, eight have given their services daily to the demonstration, and the remainder have always been ready to lend their aid when the occasion arose One of the most striking points of the demonstration is the institution of preventive medical examinations In spite of the fact that this is an innovation not easy to popularise, at Jumet 1476 persons, or 5 per cent of the population, voluntarily submitted to medical examination in 1925, although the examination was not free Another interesting feature is the participation in the demonstration of the workers and employers through their unions The glass-workers' union bought 700 health pamphlets for distribution among its members. The annual budget of the demonstration amounts to about £600, which works out at about 5d per head of population The report considers that the three main accomplishments of the demonstration so far are (1) the establishment of cooperation between the various institutions and organisations which had been working along the same lines but without any unified plan ; (2) the whole-hearted way in which the medical committee has entered into the demonstration, and the undertaking by doctors of preventive as well as curative work, (3) the awakening of a health conscience among the entire population, witness the fact that during 1925 40 per cent of the inhabitants of Jumet sought the preventive services established for their use

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[1] The Reticulated Red Cells. Their Clinical Significance Boston Medical and Surgical Journal, 1926, cxciv., p 759

THE VOLUNTARY HOSPITALS IN 1926

Many of the voluntary hospitals are now holding their annual meetings, and although their printed reports are in most cases not yet available, it is possible to form a fairly trustworthy impression of their general situation at the end of 1926 Broadly speaking, they had a better year than might have been expected in view of the long period of industrial unrest caused by the mining dispute The General Strike, during the short period for which it lasted, caused them serious inconvenience and sometimes sharp discomfort and, especially in the great towns of the Midlands and the North, the vast mass of unemployment produced by the closing of the collieries heavily reduced the receipts from those contributory funds upon which they are every year more closely dependent Yet it would not be surprising to find, when the detailed figures of the year are published, that they increased their aggregate income and that a larger number are able to present a clean balance-sheet as regards the cost of maintenance Were it not so the outlook for the voluntary system would be black indeed, since expenditure must necessarily grow It is not merely that everything costs more, but that no hospital is able to stand still. More patients and more clinical facilities react upon each other, the more hospitals can do for patients, the greater the number and the eagerness of patients It is difficult for hospitals to economise in any direction, and in many directions it is undesirable that they should. Businesslike management is rapidly becoming one of the hospital fine arts, and it may be taken for granted that, broadly speaking, there is no waste of money in any direction The hospitals must therefore look for increased resources As regards current expenditure many of them are finding salvation in the establishment and enlargement of contributory schemes which possess the cardinal advantage of almost infinite elasticity Soon they are likely to be universal

The paying patient is beginning to acquire importance as a producer of income, and schemes of extension now very commonly include provision for him This matter of enlargements raises very serious questions Surplus income, when there is any, is usually not available for building new wards which, by reason of the growing costliness of their equipment, swallow enormous sums, and so far no substitute has been found for those "special appeals" which confront us daily The contributory scheme and the paying patient are already with us, and both are growing in importance But what of the patients who ought to be paid for but are not? They are pitchforked into the hospitals in more and more thousands every year as the result of speed-madness They demand urgent attention, they cost much money, and lengthen those waiting lists which, when all reserves have been made, remain a sad reality It has become urgently necessary to devise means for bringing a large proportion of accident patients into contribution, either directly or through the organisations in which they are insured Meanwhile there is abundant room, not merely for congratulation, but for faith and hope The voluntary hospitals, taken all round, have done unexpectedly well in a difficult year, on every hand plans for enlargement of buildings and improvement of equipment are being perfected The resilience of the voluntary system is the most conclusive proof of its inherent value So thoroughly, indeed, has that value been demonstrated that talk about the nationalisation or municipalisation of the hospitals has grown so faint as to be almost inaudible.

THE TREATMENT OF MENTAL DEFECTIVES

The Mental Deficiency Act of 1913 had good intentions Conceived as a means of satisfying the two outstanding needs of the years preceding its contrivance it was hoped, first, to afford facilities for the better care and treatment of the feebleminded, and, secondly, to effect such arrangements as would ensure the transfer of their supervision and control from the legal to the medical authority Unfortunately, this "charter of the feebleminded" had that within its constitution that was doomed to bring it failure Time has shown that obvious idiots and imbeciles could not be dealt with in accordance with its requirements, and in their reports the Prison Commissioners often have recorded their inability to afford their defective criminals its benefits By defining the degrees of mental defect as definite legal entities, by effecting thus an arbitrary classification of clinical conditions not always easy to realise in actual practice, by insisting that only such aments as appeared to be members of these statutory classes should be dealt with, and by requiring, in every instance, that certification shall precede treatment, this important measure unduly restricted the range of its usefulness and successfully frustrated the primary purpose of its initiation

There was a hope that an amending Bill, valuing its opportunity, would endeavour to remedy these defects That hope has not been fulfilled Neither in the Bill of 1926, nor in Mr Crompton Wood's measure, whose second reading is to be heard in the House of Commons on March 18th, is there any indication of even a recognition of the fundamental flaws of the principal Act As these measures are the first to deal with mental conditions since the rising of the recent Royal Commission on Lunacy and Mental Disorder, it is to be regretted that as far as these two Bills are concerned it would seem have had an attack of typhoid fever in his youth This retrospective diagnosis which recalls the methods of Sir Conan Doyle's hero turned out to be correct having been suggested by the pale transverse striæ above the patellæ Striæ patellares are probably of mechanical origin The splitting or cleavage in the deeper layers of the cutis which gives rise to the phenomenon is due partly to rapid growth which is likely to occur after acute infectious diseases, and partly to the flexed attitude assumed by the patient lying in bed Dr. Parkes Weber however, in his discussion on Dr Rolleston's patient, suggested as a further factor in many of these cases an abnormal trophic condition of the cutis which diminished its normal elastic distensibility and even increased the tension present in the skin of all normal young persons

POST-VACCINAL ENCEPHALITIS

NOT only a prophet but the outcome of the investigations of a government committee may be famed abroad while unknown in the country of its origin A correspondent gives on p 619 an interesting survey of the world-literature of post-vaccinal encephalitis Among the communications to which he draws attention is one made by Prof Ricardo Jorge, director-general of Public Health in Portugal to an international conference held in May and June 1926 [1] Dr Jorge refers in the course of an exhaustive discussion of the available evidence to the report placed before the Comite de l Office International d Hygiene Publique at a previous meeting held at The Hague in May, 1925 This report apparently embodied the findings of a committee appointed *ad hoc* by the Ministry of Health of Great Britain under the chairmanship of Sir Frederick Andrewes Dr. Jorge praises the report as an extremely abundant source of information comprising systematic inquiries about cases statistical analyses topographical and chronological research into ætiological and epidemiological relations, and finally a complete discussion of all imaginable hypotheses as to the nature of this encephalitis From the data supplied he has compiled the following table:—

	No of cases	Years
England	62	1922–24
Holland	36	1924–25
Switzerland	2	1924
Czecho-Slovakia	7	1923
Austria	18	1924–25

Dr Jorge says that "la commission Andrewes" considered, in turn three questions: (1) whether the encephalitis is connected with the inoculation of vaccine in the direct relation of cause and effect, (2) whether on the contrary, another known virus such as that of poliomyelitis or encephalitis lethargica, has intervened having found a portal of entry in the vaccination lesion, (3) whether some still unknown virus is the cause of the condition According to him each of these theories in turn was formally rejected by the commission though it is difficult to see how they could all be wrong He quotes with approval the following words of Prof J McIntosh but gives no indication of their context: 'I am strongly of the opinion that we have had to deal with a hitherto undescribed lesion of the central nervous system' In this connexion we may recall that in a paper published last August, Prof H M. Turnbull and Prof McIntosh [2] published records of seven cases in which, they assert there can be no doubt that vaccination was a definite causal factor They describe the typical histological appearances of the lesions found the most important characteristics being the number and size of zones of extra adventitial perivascular infiltration in comparison to the development and size of adventitial vascular sleeves: and the extensive distribution of the lesions. This elaborate study was published only after the report of "la commission Andrewes" had been handed to the International Conference at The Hague but since Turnbull and McIntosh sent reports on the histological and experimental investigations described therein to the Ministry of Health in 1924, doubtless their findings received consideration. Meanwhile, in April 1926 we were asked to give publicity to the formation of another committee, under the auspices of the Ministry of Health to investigate cases of encephalitis directly following vaccination, and practitioners were requested to inform its secretary, Dr. J. R. Hutchinson of any cases which came under their observation In view of the international importance of clearing up the ætiology of this form of encephalitis, it may be hoped that the report of this committee will not be long delayed.

The Services.

ROYAL ARMY MEDICAL CORPS

Maj B Biggar is restored to the estabt.

Temp Capt. M Ferguson relinquishes his commn., and is granted the rank of Capt.

SUPPLEMENTARY RESERVE OF OFFICERS

Lt. A G Henderson to be Capt.

TERRITORIAL ARMY.

Lt.-Col. (Bt Col) G L. Thornton, from R.A.M.C, to be Col. and to be A.D M.S 43rd (Wessex) Div T.A., vice Col A. B. Soltau K.H.P, who vacates that appointment.

Capt. H C C Hackney to be Maj

Supernumerary for Service with the O T C—Maj W J. A. Laird, Res. of Off., resigns his commn. in the T.A.

INDIAN MEDICAL SERVICE

Lt.-Col. W. O'S Murphy to be Col.

Capts. H Aung Khin and Malik Anup Singh to be Majs.

Capt. M F D Graham resigns his commn

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee 38 cases were considered and £746 10s voted to 36 applicants. The following is a summary of some of the cases relieved:—

L.R C P & S, aged 63 who through illness has been unable to take up his locum work and is now in hospital. To meet his expenses an emergency grant of £5 was sent and a further sum of £40 voted

M R C S Eng aged 57, held an assistantship until taken ill in December last, and is now in a nursing home. Only assets £120 capital and about £50 worth of furniture. Fund sent 10 guineas and voted a further £40 payable in six instalments

Widow, aged 67, of M.R.C S. Eng. who died in 1914 Through failure of investments and the loss of a son who contributed to her support, has had to take a post as housekeeper. During the last two years has broken her arm and twice broken her ankle Has £62 from two pensions and £60 as housekeeper. Debts £20 Voted £10

Daughter aged 40 of M.B Aberd. who died in 1906 Supported herself as a clerk until 1925 when she had a serious breakdown. Now entirely dependent on her sister, who is a bank clerk. Mother who died in 1923 was a grantee of the Fund. Applicant asks for a temporary grant. £10 voted.

M.R.C S Eng aged 66 married. Sons killed in the late war Has suffered from ill-health for the past 15 years Has an allowance of £120 from a sister and £27 from the Ministry of Pensions House belongs to wife and the rates amount to £13 per annum. Debts £55 Voted £30

Widow, aged 60, of M.R.C S Eng. who died in 1924. She is a trained nurse but delicate Applicant let her house furnished but has had no rent for three months and has taken an action against the tenant for recovery Has a pension of £50 a year and £8 10s from children who are both married. Voted £26 in monthly instalments

Daughter aged 60, of M.R.C.S Eng who died in 1913 On account of age has had great difficulty in finding employment as a dispenser and last year only made £82 From investments received £24 Board and lodging £90 Voted £12 in 12 instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

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[1] Office International d Hygiène Publique Bulletin Mensuel, tome xix, No 1 January 1927

[2] See THE LANCET, 1926 ii., 504

percentage of reticulated cells seldom falls below 15 and is frequently in the neighbourhood of 50 In the words of the author, "a palpable spleen with a high (reticulated red cell) count equals either hæmolytic or pernicious anæmia, whereas a spleen with a normal or slightly raised count belongs to the Banti or cirrhosis group." The author's technique for the performance of the reticulated red cell count is simple Brilliant cresyl blue, 0 3 per cent. in alcoholic solution, is used Slides are kept on hand, having at one end a dried drop of dye A drop of blood is placed on a cover-slip which is inverted on the dye, and the two are allowed to mix for from three to four minutes The count is made with a high dry or oil immersion objective and with an eyepiece furnished with a square diaphragm One thousand red cells are counted and the proportion of reticulated cells noted

ISAAC NEWTON.

IT will be 200 years to morrow (Sunday) since the death of Isaac Newton, which occurred on March 20th, 1727. In a sense Newton's fundamental discoveries along the whole range of mathematics and the related physics had no immediate bearing upon medicine save in the realm of optics, nor, as we know from his life, had the phenomena of disease any attraction for him But such profound revolutions of thought as were brought about by the publication of the "Principia" were bound to have an immediate and enlightening effect upon all medical and biological work. The machinery for research became facilitated, and, above all, the attitude in which discovery should be pursued became evident, with the result throughout Europe that pathology assumed a scientific status which it had never before attained, as the leaders of thought appreciated the significance of the new knowledge The influence of Newton upon medicine was undoubtedly indirect, but medicine shared with all science the benefits derived from the grand enlightenment.

THE NATIONAL UNION OF SCIENTIFIC WORKERS.

THE National Union of Scientific Workers was founded in 1918 with the objects of promoting the cause of natural science in our national life and of improving the status of the scientific worker It is entirely non-political and has definite economic and cultural aims. It has already been successful in securing improvements in the conditions of service of scientific workers in Government and private employ, and has intervened in a variety of matters in which the importance of scientific research has needed emphasis. The Union has, however, failed to incorporate more than a proportion of these who are qualified for admission, the membership is still less than a thousand, and in an attempt to extend its activities it has lately issued a general statement of its aims along with an invitation to workers to express their opinions on the question as to how the Union may best achieve its objects The appeal is supported by a very weighty list of names distinguished in science and in public life. We do not doubt that such an organisation may be effective and sometimes useful, but we question whether those who are promoting it have sufficiently considered the psychology of the group mind, and have found a common ideal which will unite all the members they desire to attract into a corporate whole "Scientific workers" have a common technique in so far as they proceed by experiment and mathematics But their aims are by no means so similar, and it is at least doubtful whether their ideals are sufficiently homogeneous to form a bond of union between them which will stand more than the slightest strain. The British Medical Association promotes cultural and economic aims in the same way, and is successful because the members are all united by a real community of training and practice We can imagine that many members of the National Union of Scientific Workers might band themselves together as university teachers But it seems unlikely that they will easily and harmoniously run in double harness with those whose object in life is (or from their occupation ought to be) to earn dividends for shareholders in competitive chemical manufacture. Recent events to which THE LANCET has drawn attention bring out plainly the point over which disruption seems certain to come sooner or later, the Union is attempting to unite persons with ideals as different from each other as the ideals of those who would exploit medical discoveries for private gain are from those of the rest of the medical profession. One scientific worker has no necessary kinship with another scientific worker; it all depends on what ideal he is serving with the technique of scientific work

AN INTERESTING COMMEMORATION.

A GATE in commemoration of the work of Sir Ronald Ross, erected near the north entry to the Presidency General Hospital, Calcutta, was opened on Jan 7th by Lord Lytton, the Governor of Bengal The memorial, which bears a medallion portrait of Sir Ronald Ross and an apposite inscription, faces one of the principal traffic routes of the city and will be passed by thousands of persons daily, who will thus be reminded that in a small laboratory a few yards from its site Ross's great discovery was made. Lord Lytton in an eloquent speech pointed out that Calcutta, although the birthplace of the knowledge had as yet derived less benefit from antimalarial work than other parts of the world, and instanced Panama, Ismailia, West Africa, and the Malay Peninsula as all owing freedom from malaria to the work they were assembled to commemorate He welcomed Sir Ronald Ross on his visit to Calcutta with pride, and suggested that belated gratitude to him should take the form of an intensive campaign against malaria in Bengal Sir Ronald Ross, in reply, associated himself with the labours of those who had preceded him in working out the problems, and described himself as living the proudest moment of his life The commemoration ceremonies were organised by Colonel Megaw, head of the School of Tropical Medicine in Calcutta, who in an introductory speech spoke forcibly of the chilling atmosphere in which Ross's work had been done, of his dogged perseverance, and of the need of a tangible memorial seeing how general the ignorance was of what had been done.

STRIÆ PATELLARES.

THE condition of striæ patellares, of which Dr J D. Rolleston[1] recently showed an example at the section for the Study of Diseases in Children of the Royal Society of Medicine, is a localised form of that phenomenon which has received various names, such as striæ atrophicæ, striæ cutis distensæ, or striæ albicantes, and is called *vergetures* by the French and *falsche Narben* by the Germans It is manifested by the appearance above the upper border of the patellæ of symmetrical transverse striæ, which at first are red or purplish in colour, and then gradually become pale, like the more familiar striæ atrophicæ associated with pregnancy Though the condition has received considerable attention in France where it was first described by Regnier in his Paris thesis in 1860, as well as in Germany, not much has been written on the subject in this country, apart from articles by Dr J Bunch and Dr. F Parkes Weber It is met with after many infectious diseases, but is commonest after typhoid fever, as was exemplified in the patient, a girl aged 14, shown by Dr Rolleston, who stated that he had seen another case following paratyphoid B Bleibtreu in an article published in 1905, when typhoid fever was commoner than at present, relates how his chief, Prof Leichtenstern, surprised his audience and the patient whose knee-jerks he was examining by saying that the man must column of food falls below 8 in. (Fig. 3). Consequently the patient is able to obtain just sufficient nourishment to maintain a low level of nutrition, but the œsophagus is constantly full: food does not regurgitate from it even on lying down as the upper sphincter is closed, except during deglutition, though by a voluntary effort the œsophagus can generally be emptied. The obstruction offered by the cardiac sphincter results in over-action of the œsophageal muscle, which becomes greatly hypertrophied, and the accumulation of food leads to enormous dilatation. The sphincter, however, remains unchanged, the hypertrophy, which would be present were there an element of spasm, being never observed.

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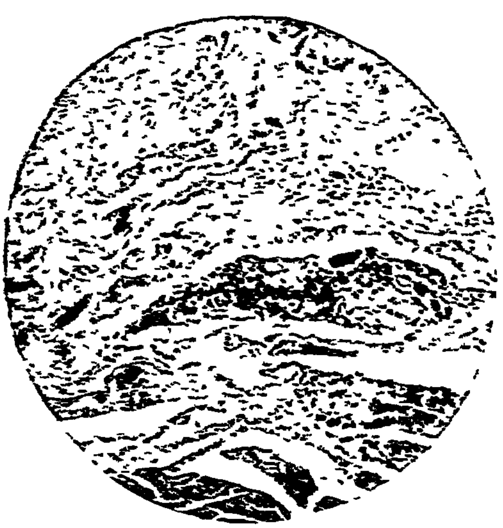
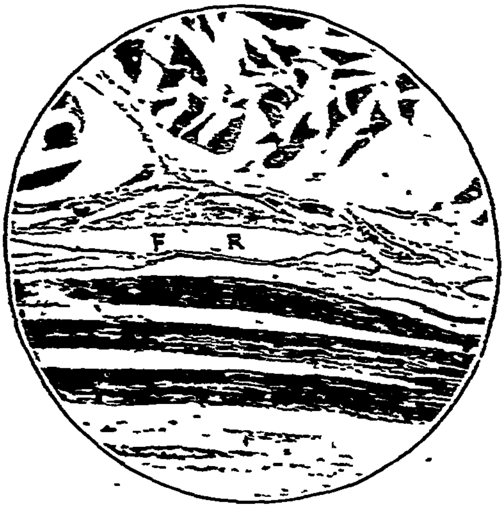
[1] Proceedings of the Royal Society of Medicine, February, 1927 Children's Section, p 9

FIG. 5.



Microphotograph of ganglion showing cell infiltration and degeneration of ganglion cells in achalasia of the cardia. (G. W. Rake, Guy's Hospital Reports, vol. lxxv., No. 2, 1925.)

FIG. 6.



Section through cardiac end of œsophagus in Mr. Grey Turner's case of achalasia to show cell infiltration (R) and fibrosis (F) of Auerbach's plexus, and complete disappearance of ganglion cells, none being seen in any of 50 serial sections. × 50 (Prof. Adrian Stokes.)

Achalasia of the cardia must be due to interference with the normal neuromuscular mechanism which leads to the relaxation of the cardiac sphincter on the arrival of each peristaltic wave. Occasionally this is the result of some organic disease involving the vagus such as tabes or peripheral neuritis: occasionally it is reflex and secondary to irritation of the œsophagus by adhesions to a tuberculous gland, or to an ulcer or growth of the stomach. In the large majority of cases no obvious cause is found: the condition is then probably due to inflammation, degeneration, or syphilis involving the nerve-plexus of the sphincter, strictly analogous with the local diseases which give rise to heart-block. Since I suggested this possibility[2] three cases have been investigated pathologically at Guy's Hospital: in the first, Rake[3] demonstrated well-marked inflammatory and degenerative changes in the lower end of the œsophagus, particularly involving Auerbach's plexus (Figs. 4 and 5): in the second and third specimens, sent respectively by Mr. Grey Turner, of Newcastle-on-Tyne, and Mr. J. Morley, of Manchester, Prof. Adrian Stokes found that the whole of the nerve-plexus in the neighbourhood of the cardiac sphincter had been destroyed and was replaced by fibrous tissue (Fig. 6).

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(*To be concluded.*)

Special Articles.

ACUTE DISEASE OF THE CENTRAL NERVOUS SYSTEM ASSOCIATED WITH VACCINATION.

CASES of encephalitis following or occurring in the course of acute infectious diseases have been reported in the medical journals from time to time during the last few years. No doubt the severe epidemics of diseases of the central nervous system which have occurred in the last 20 years have made medical practitioners more alert in diagnosing and more exact in describing cases of meningitis, poliomyelitis, and encephalitis lethargica which formerly were regarded as rare or even unprecedented, except by the specialist in nervous diseases, and passed unexplained. Knowledge of these diseases and their differential diagnosis has been greatly improved by additions to clinical methods such as lumbar puncture and chemical, microscopic, and cultural examination of the cerebrospinal fluid.

Cases of encephalitis or *meningitis serosa* in the course of measles and varicella have probably actually occurred more frequently and have certainly been more often recorded during the last five or six years. Winnicott and Gibbs[4] collected 12 cases of varicellar encephalitis. A recent review by E. Glanzmann[5] of the nervous complications of varicella, variola, and vaccinia, mentions five cases of encephalitis after chicken-pox. He also mentions 13 recorded cases of small-pox in which nervous complications, especially aphasia, appeared on dates fairly evenly distributed between the second and twenty-eighth day of the original disease. F. Lust (1926) recorded four cases following measles and mentioned nine recorded by others.

Encephalitis following Antivariolous Vaccination.

The subject has acquired additional interest and importance from the occurrence of a number of cases of encephalitis following antivariolous vaccination. General attention was first drawn to the subject in the medical press by F. Lucksch[6] in 1924. He described three fatal cases which he had observed in Bohemia in 1923, all of which were taken ill exactly ten days after vaccination. The vaccination itself had run a normal course without apparent excessive reaction.

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[3] G. W. Rake: Guy's Hosp. Rep. 1925, lxxv., 145.

[4] British Journal of Children's Diseases (1926, vol. xxiii.), referred to in THE LANCET, July 3rd, 1926.

[5] Schweiz. med. Wochenschr. Feb. 12th, 1927.

[6] Med. Klinik, 24 [illegible], 24, p. 1170.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions

CCXV.

TREATMENT OF ACHALASIA OF THE CARDIA
(SO-CALLED "CARDIOSPASM")

I *—GENERAL CONSIDERATIONS

THE mouth of the œsophagus is closed during rest by the tonic contraction of the inferior constrictor of the pharynx The lower end is closed by the cardiac sphincter This is a definite structure from 1 to 1¼ in in length (Fig 1), it constitutes the intra-abdominal portion of the œsophagus and may extend a short way above the diaphragm Its muscular coat is very slightly thicker than that of the rest of the œsophagus, and its mucous membrane is thrown into longitudinal instead of transverse folds The nerve-plexus of Auerbach between its muscular coats is well developed, forming a special "nodal tissue," similar in structure to the neuromuscular nodes of the heart

FIG 1.

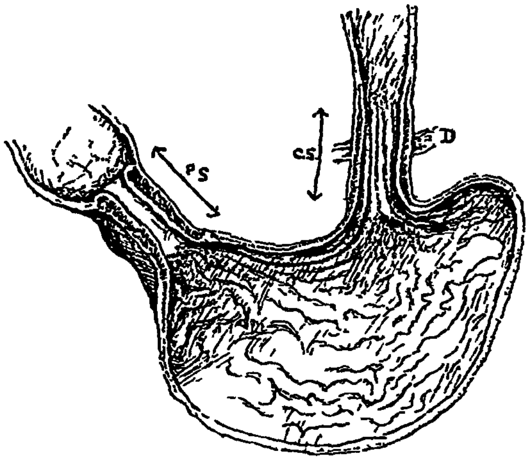
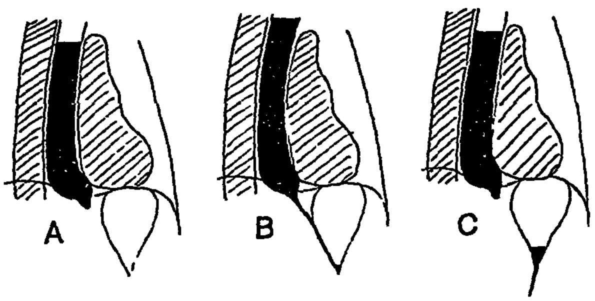


Diagram showing the stomach of a full-time fœtus CS, cardiac sphincter, with deep, pale, longitudinal rugæ and thickened circular muscle D, diaphragm attached to centre of sphincter PS, pyloric sphincter

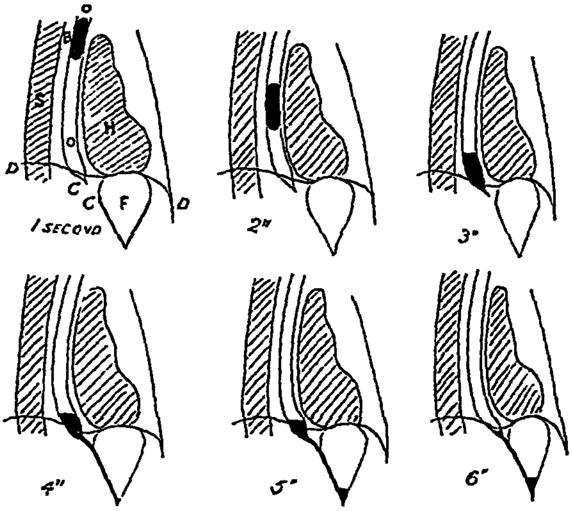
FIG 3



Diagrammatic drawings of œsophagus in achalasia of the cardia A, shows column of barium-containing food, 8 in high, above closed cardia B, after additional quantity of food swallowed, so that the taller column, being heavier, opens cardia and allows surplus to enter stomach C, Return to condition of (A) after surplus food over the 8 in column has entered stomach

Physiology —In the process of swallowing food is thrust through the pharynx by the action of the tongue, the upper sphincter relaxes and permits it to enter the œsophagus, down which it is propelled by peristalsis When a peristaltic wave passes down a muscular tube, the wave of contraction is preceded by a wave of relaxation, consequently when the diaphragm is reached the cardiac sphincter relaxes, and the food passes through it into the stomach, after which the sphincter once more closes in order to prevent regurgitation into the mouth (Fig. 2)

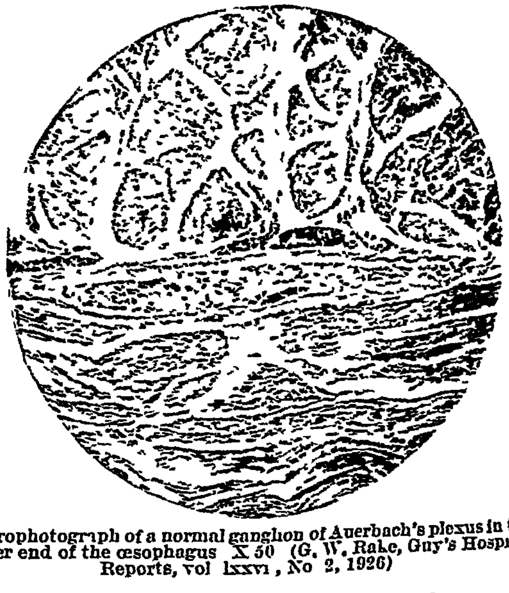
FIG 2



Diagrams of the passage of a bolus of barium containing food (B) through the œsophagus (O O), as seen with the X rays in successive seconds after swallowing S, spine, H, heart, D D, diaphragm, C C, cardiac sphincter, F, fundus of stomach

Pathology —Achalasia of the cardia is a condition in which the cardiac sphincter does not relax (α, not, χαλαω, relax) in the act of deglutition [1, 2], the food is retained in the lower end of the œsophagus, the peristalsis of which is not sufficiently strong to overcome the resistance offered by the closed sphincter More and more food accumulates until a column 8 in high is formed, the pressure exerted by this is just sufficient to overcome the resistance of the cardiac sphincter, so that any additional food now taken forces that in the lower end of the œsophagus through the sphincter, which closes again directly the height of the

FIG 4.



Microphotograph of a normal ganglion of Auerbach's plexus in the lower end of the œsophagus × 50 (G. W. Rake, Guy's Hospital Reports, vol lxxvi, No 2, 1926) thousands of children have been vaccinated without bad results with Levaditi's "neurovaccine" which had been repeatedly passaged through the brain of rabbits

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* Part II, on Symptoms and Diagnosis and Measures for Relief, will be published next week

[1] H D Rolleston Trans Path Soc, 1896, xlvii, 37

[2] A. F Hurst Quart Jour Med, 1914, viii, 300, and Medical Essays and Addresses, p 110, London, 1924

4 The suggestion that on the average about 1 in 10,000 of all vaccinations is followed by encephalitis is scarcely compatible with the special incidence in certain countries and parts of a country. Bastianse found strong evidence of factors connected with time and place which determined the incidence of cases In two large towns of over 100.000 inhabitants each there was one case in 30 000 of the population and 1 in 9000 of vaccinations In towns of under 5000 inhabitants there was 1 in 2000 of the population and 1 in every 63 vaccinated

5 The special histological peculiarities of the post-vaccination encephalitis described by Turnbull and McIntosh are not universally accepted and the great variability of the pathological anatomy and histology in encephalitis lethargica make exclusion of this disease difficult on these grounds

6 The clinical features in some cases strongly suggest encephalitis lethargica and, in any case. are not sufficiently uniform to constitute the definite syndrome of a new and distinct disease

In favour of the view of Bastianse, Levaditi, Kraus, Zurukzoglu, and others that the post-vaccination encephalitis is Economo's disease with vaccination acting as an exciting and modifying cause in persons incubating or carrying the virus of the former. are: (1) The general morbid anatomy and clinical history (2) The great prevalence of the disease during the last few years. which in some instances has been especially accentuated in the time and in the country where the cases of post-vaccination encephalitis have occurred (3) Kraus and Takaki. by a special technique which had been worked out with herpes virus and serum from lethargica patients obtained fixation of complement with the central nervous system of fatal cases as "antigen" and serum from cases of encephalitis lethargica but not with serum immune to vaccinia. (4) Experiments in which herpes virus inoculated subcutaneously in rabbits has caused encephalitis when vaccinia has also been injected intravenously at the same time have been brought forward by Zurukzoglu as evidence that vaccinia produces a susceptibility of the brain to herpes or other encephalitic virus

The experimental evidence brought forward in support of these views by Kraus and Takaki and by Zurukzoglu involves the acceptance of the identity of the virus of herpes encephalitis and that of encephalitis lethargica This identity is not generally accepted, though supported by Levaditi and Perdrau. Most experimenters have completely failed to infect animals with lethargic virus, and such successes as have occurred are widely held to be due to concomitant infection of the patient or the rabbit with herpes virus

Conclusion.

Between the views which attribute the actual encephalitis to vaccinia and to encephalitis lethargica or herpes virus respectively are a number of grades of opinion according to which endemics and epidemics of such diseases as Economo's encephalitis poliomyelitis and even cerebro-spinal meningitis are taken as evidence of a general predisposition to disease of the central nervous system and vaccination as an exciting, predisposing or merely additional factor. These views and their possible modifications have been ably discussed by Sobernheim.

The only possible conclusions to be drawn with certainty are that the cases of post-vaccinal encephalitis do result from vaccination at least as a contributory cause but that the immediate cause of the encephalitis is probably not an ordinary bacterial infection but some living ultravisible virus. To the question what is the exact nature of this virus the answer is less sure but the evidence points decidedly against the vaccinia virus acting alone. and there is a further probability that virus of encephalitis or possibly that of poliomyelitis has an important share in the production of the cases of disease Which of these viruses is active in a given case may depend on the prevailing epidemic or season. In either case the course of the disease and character of the symptoms may not improbably be modified by the vaccinal infection Since encephalitis lethargica has not so far been certainly communicated to animals, unless the virus of herpes is eventually shown to be a form of the same infective agent. experimental failure to infect rabbits or monkeys from post-vaccination cases of encephalitis does not help to decide whether that virus is playing an active part

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MEDICINE AND THE LAW.

The Position of the Medical Witness.

A CASE of some interest came lately before the Banbury County Court Dr Alan Forty. of Shenington. made a claim for 10*s* 6*d*. because of the principle involved namely. the right of the medical man to be paid for a medical report affording help in the course of legal procedure which could not be classed as the ordinary help which a member of the public would be able to give at the request of the police. The facts are these Dr. Forty received a message that two men had been injured in the overturning of a motor car. He found a constable in charge. examined the driver of the car and formed the opinion that he was not under the influence of drink The following day the constable asked him to make a report with reference to the condition of the driver. which was done. the report in writing being accompanied by an account for 10*s* 6*d* In reply Dr Forty received an intimation that his claim was not understood, inasmuch as he had supplied only the help which it would have been the duty of any other person to render to the police A claim was then brought by the London and Counties Medical Protection Society for Dr Forty against the Chief Constable of the County. who said in court that payment was opposed as being a matter of concern to the ratepayers Judge Staveley Hill said that the case was interesting, though the amount involved was small. He held that the plaintiff had not substantiated his claim. as he was not called in by the police. He did not consider that the writing of a report later made the assistance which Dr. Forty had rendered to the police any different from that which might have been given by an ordinary witness. He gave judgment for the defendant, but without costs It is clear that His Honour recognised that Dr. Forty's claim was made on principle. and that the Chief Constable of the County had opposed payment for the same reason. The matter cannot apparently be carried further as an appeal would probably not be allowed. because it would be founded on a question of fact, and not on a point of law. but to medical men the decision of Judge Staveley Hill will not appear satisfactory. The assistance that was given by Dr Forty to the constable in charge of the case was distinctly of medical or expert nature. An investigation of the condition of the driver might have had considerable bearing on the sequel. when the medical qualifications of a witness would have been all important. No layman who happened to be on the scene of the accident would have been able to give the authoritative assistance that could be rendered by a doctor.

ST. LUKE'S HOSPITAL.—The Governors of St Luke's Hospital have acquired three houses. standing together in eight acres in Woodside Avenue. Muswell Hill Further buildings are to be erected and it is intended to use the whole establishment as a nursing home for nervous cases and for clinical purposes.

A HOSPITAL AMALGAMATION.—It has been decided to amalgamate the Plymouth Ear and Throat Hospital with the South Devon and East Cornwall Hospital On the other hand, the Governors of the Bristol Royal Hospital for Sick Children have rejected a proposal to work in conjunction with the Royal Infirmary

Lucksch at first regarded these cases as typical cases of encephalitis lethargica on the grounds of clinical symptoms and of pathological anatomy and histology Later, however, he was led to blame the vaccinia virus for the changes in the brain Cases with similar symptoms and all suggesting acute intracranial inflammation have now been described from Holland, Austria, Switzerland, France, England, Greece, and Czecho-Slovakia The earliest recorded case appears to have come under the observation of Comby in 1905 and to have been recorded with two others in 1907. Comby refers to these and narrates an additional and recent fatal case [7] Prof R Jorge [8] recently reviewed all the evidence concerning post-vaccination encephalitis, and gave the numbers recorded in different countries England, 62, Holland, 36; Switzerland, 2, Czecho-Slovakia, 7, and Austria, 1. He also discusses the report of the committee appointed by the Ministry of Health to investigate the subject, which has not yet been published in this country Five fatal cases of post-vaccinal encephalitis occurring in this country which closely resembled those reported from the continent were recorded by Turnbull and McIntosh,[9] and G van Rijnberk [10] states that 62 such cases with a 56 per cent mortality have occurred in England A Departmental Committee on Vaccination has been appointed by the Ministry of Health, and on April 24th, 1926, an invitation to the medical profession was published in THE LANCET and *British Medical Journal* to send information to this committee of any cases of disease of the central nervous system arising within four weeks of vaccination No doubt the committee will report in due course, but so far no information on the subject has been published

Though not all have had quite the same history and symptoms the majority have been alike in certain particulars and especially in the time of onset of the acute cerebral condition which has been in most cases 8 to 12 days after vaccination The symptoms have indicated acute encephalitis, but without, as a rule, evidence of meningitis Permanent local paralysis, which is so characteristic of acute poliomyelitis and other lasting sequelæ common after encephalitis lethargica, are almost absent from the records

The largest series of cases reported from any one country was observed in Holland This has been fully discussed by F. S B v. Bastiaanse, P Bijl, and J. Th Terburgh.[11] These writers state that 35 cases occurred between Jan 1st, 1924, and the end of June, 1925, whilst about 250,000 children were vaccinated in the same period Thirty-three of the cases were in children of 3 to 6 years, and at these ages 79,936 children were vaccinated during 1924 alone, out of a total of 161,145 vaccinations under 13 years of age The proportion of vaccinated children attacked was therefore very small and selection of a special age by the disease very definite

The period which elapsed between vaccination and the acute onset of encephalitis was 5 to 23 days Usually the first symptoms occurred on the tenth to the twelfth day (24 cases) Vomiting, headache, and high fever followed by drowsiness and convulsions were the chief symptoms The acute stage lasted 7 to 15 days and 15 of the children died (42 per cent) There was a notable absence of sequelæ in those that recovered During February, March, and April, 1925, about 122,000 persons were vaccinated and 24 cases of post-vaccinal encephalitis occurred—i e, 1 in 5000—but during the other nine months of that year with 151,000 vaccinations there were only 7 cases, or 1 in about 21,400 vaccinations The large area of Europe involved and the many different sources from which the vaccine implicated came negatived the idea that the disease could be due to contaminated vaccine, and the large number of children who were vaccinated with the same lymph and escaped complications pointed in the same direction The vaccine used in Holland came from 12 different calves which had been inoculated with five different strains of lymph, two from Holland, two German, and one from the East Indies Bastianse attributed his cases to infection with encephalitis lethargica which at that time was very prevalent The figures which he gives for the first months of 1925 strongly support this view.

In January there were 12 cases of encephalitis notified
In February 16 cases, of which 2 were post-vaccination cases
In March 51 „ „ 16 „ „
In April 27 „ „ 7 „ „
In May 10 „ „ 0 „ „

The increased number of vaccinations performed during the same period also suggested that the post-vaccination cases might be due to chance vaccination of children already infected with encephalitis lethargica

The Nature of the Disease

Bastianse recognised that the cases did not conform exactly to the usual type of encephalitis lethargica, since the onset was more sudden, the occurrence of paralyses very much rarer, and the mortality much higher, especially for children

The symptomatology of Economo's encephalitis is, however, notoriously varied, and there is also a tendency for the symptoms and the type of the disease to be slightly different in one country or in one group of cases to that occurring elsewhere. A similar variability is also found in the cases of post-vaccination encephalitis—e g, the trismus- and tetanus-like symptoms which occurred in Lucksch's cases Against the view that the essential cause of encephalitis is the vaccinia virus must be placed the almost invariable failure to detect this in the central nervous system of the children who have died and been examined post mortem The paper by Turnbull and McIntosh appears to contain the only published evidence of vaccinia virus being recovered from the brain or lumbar-puncture fluid of patients It is well known, however, that after the inoculation of rabbits with vaccinia on the skin the virus can be found in almost every organ, including the brain, for two or three weeks, if the search is thoroughly carried out, even though the lesions are confined to the skin

The question of the exact nature of these cases of post-vaccinal encephalitis occurring in so many countries and the share which vaccinia and other causes have in their production is not as yet determined Among all the writers who have reported cases or reviewed the subject there is general agreement that vaccination has some causal relationship to the cases, although they are relatively rare, about 1 to 1 4 in 10,000 vaccinations in Holland and Switzerland That the disease is simply vaccinal inflammation of the brain, as suggested by Turnbull and McIntosh, Lucksch, and others, and that it is perhaps due to an especially neurotropic strain of vaccinia appears to be negatived by the following considerations

1 Enormous numbers of children have been vaccinated in the past without cases of encephalitis resulting, at any rate, in numbers approximating to the present series, till quite recent years, and a large number of innocuous contemporary vaccinations are carried out

2 Except in one case there has been failure to detect any evidence of vaccinia virus in the brain of fatal cases, either experimentally by the inoculation of rabbits or serologically by the method of Kraus and Takaki Even if found its presence would not have the significance implied by Lucksch and Kraus, since its wide distribution in the body is believed to invariably follow vaccination

3 Large numbers of children have been vaccinated with the same strains of lymph which were used for those who subsequently became ill, and many

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[7] Bulletin et Mém d la Soc des Hôpitaux de Paris, Oct 8th, 1926

[8] Bulletin Mensuel de l'Office International d'Hygiène Publique, January, 1927

[9] British Journal of Experimental Pathology, August, 1926

[10] Nederland Tijdschrift v Geneeskunde, Sept 18th, 1926

[11] Bulletin de l'Académie de Médecine, Sept. 21st, 1925, and more fully in the Nederland Tijdschrift v Geneeskunde, Sept 18th, 1926, p 1267

A PORTRAIT OF WILLIAM HARVEY

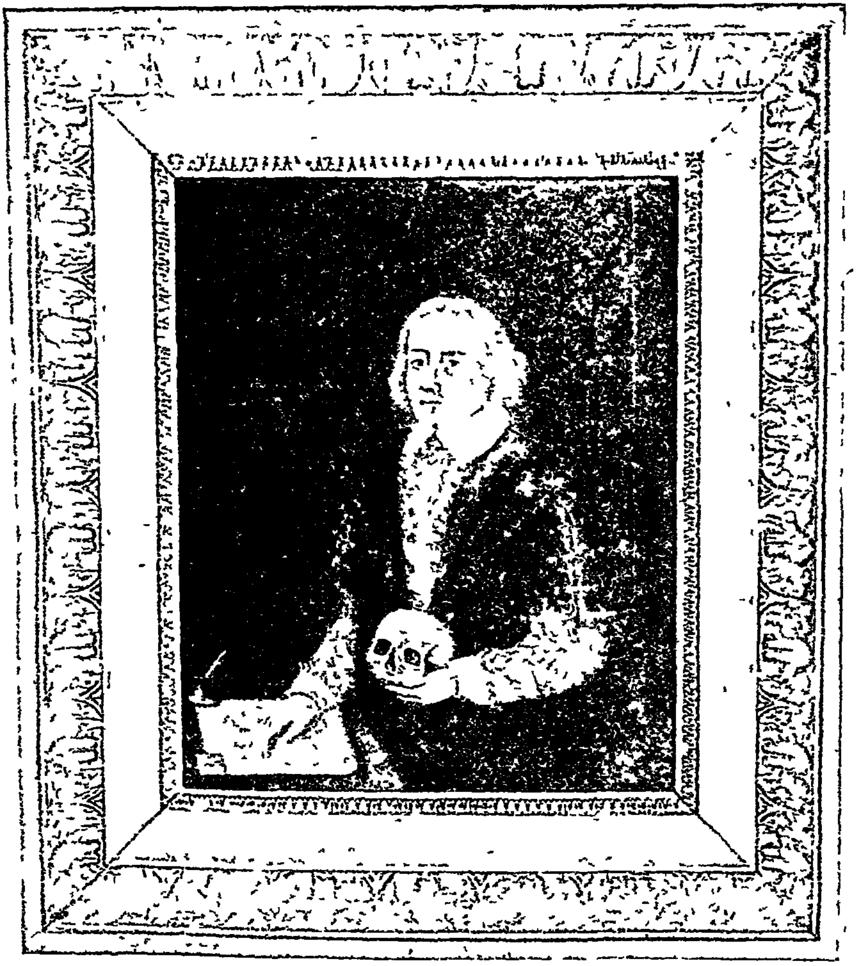
Observations and Notes by

Rickard W Lloyd, M R C S Eng , L R C P Edin

> " There thy Observing Eye first found the Art
> Of all the Wheels and Clock work of the Heart
> The mystic causes of its Dark Estate,
> What Pullies Close its Cells, and what Dilate
> What secret Engines tune the Pulse, whose din
> By Chimes without Strikes how things fare within "
> —M LL , M D [1]

This old picture bears as its title " Guilielmus Harveus, Anno Dom 1647 " the words are placed to the left of the face in the background, removing all doubt who is the subject of the portrait The question arises, was the picture painted by Lely? Among the *intrinsic* evidences in support of that are, in my opinion, the drawing, colour, and handling of the work, there is also the signature "P Lely" towards the right on the lower rim of the inkstand

Information upon the portrait and any *extrinsic* evidences of attribution would be very much appreciated by me The portrait is on an oak panel 12 inches by 10 inches There is a portrait of William Harvey by Cornelis Janssens in the Royal College of Physicians of London, where he was Professor of Anatomy and Chirurgery, and another from an unknown hand in the National Portrait Gallery



A Portrait of William Harvey

The artist has dwelt upon Harvey's acts and meditations and renders his impressions of the theme Harvey is portrayed with long grey hair which may well have been dark when he was younger in accordance with tradition , of thoughtful expression, of short stature, and easy graceful mien He is wearing a gown—perhaps the identical one bequeathed by him as " my velvet gowne to my lovinge friend Dr Scarburgh "—over a dress of a gentleman of the time , and standing, nearly vis-à-vis, delivering a lecture His left hand is supporting a skull , while his right is resting upon a diagram of the circulation of the blood, which he had first publicly demonstrated in a lecture, delivered on April 17th, 1616, on the Chest and its Contents

In 1647, the date which the picture bears, Harvey was about 69 years of age , he died 10 years later, in 1657 In 1646, after the surrender of Oxford during the Rebellion, Harvey returned to London and resided at his brothers' houses They were wealthy merchants There would seem nothing improbable in Harvey giving sittings to Sir Peter Lely Lely was born 1618, arrived in England in 1641 and in 1643, at the age of 25, painted portraits of Charles I , William Prince of Orange, and Princess Mary We learn also from Bryan's dictionary that among the very numerous portraits which he painted was one of Oliver Cromwell At the Restoration, Charles II appointed Lely his principal painter, and created him a baronet in 1679 or 1680 Lely was seized with apoplexy while engaged on a portrait of the Duchess of Somerset, and died in 1680

A signature is not needed to prove a picture to be genuine, even where the artist's habit was to sign A signature may be a good clue to ascription, an original signature is, of course, strong evidence of authorship, while even a false or faked signature is not definite proof against authorship, for a signature may be added to a genuine picture

The small photograph which accompanies these notes does no justice to the original, which I shall be happy to show to persons interested

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[1] Extracts from a poem to the Incomparable Dr Harvey on his Books of the Motion of the Heart and Blood, &c The poem appeared as an introductory in Anatomical Exercitations, 1653, and is signed M LL , M D

Royal Free Hospital New Children's Wards. The Queen opened recently the new Riddell Wards for children, so named after Lord Riddell, the president of the hospital Advantage has been taken of the position at the top of the building to provide facilities for sunlight treatment Eighteen beds are available, and boys will be admitted up to 10 years of age and girls up to 12 The centenary of the hospital is to be celebrated by erecting a children's wing, to include quarters for infants' and children's clinics, a tonsil and adenoid ward, an operating theatre, and recovery rooms, and an expansion of the pathological department The cost will be £200,000

SCOTLAND.

(From our own Correspondent)

Influenza

From the returns collected and circulated by the League of Nations Health Section, it is clear that the endemic prevalence of influenza in Scotland has been reinforced by fresh infection from various countries Influenza has wandered into almost every part of Scotland. Thus there are localities in the Lowlands where a couple of families imported from England have spread influenza through a village or region, and it is this type of sudden invasion and spread that confirms a diagnosis of specificity Early in the year there was little evidence of a widespread epidemic, and even a doubt of the real nature of the disease Seasonal colds and catarrhs necessarily complicated the position But, even in special areas like Edinburgh or Glasgow the characteristic syndrome of influenza—including headache, pains in the back, slight cough, laryngitis, or gastric symptoms—were repeated too often be ignored The epidemic was reminiscent of that of 1890, but it is the universal story that the cases are mild This, of course, is one of the treacherous features of influenza ; it is most likely that there will be a group of cardiac or other disablements later in the year

No doubt, the Health Section of the League of Nations will arrange for a general report to be built up on the basis of local reports, and this ought to throw light on the European spread of the infection It may bring together data bearing on the two problems, (*a*) why the endemic infection persists, though in an ever-weakening form, and (*b*) why, in spite of the immunity to be expected from this wide diffusion, a more virulent infection suddenly stirs up fresh epidemics

Meanwhile, how is the death rate affected ? The following figures are taken from the weekly returns for the 16 large towns In 1925 there was a steady increase of deaths from influenza until the fourth week of March, when the climax was 97 per week In 1926, the numbers were relatively low until the third week of March, when they rose from 12 to 31, and by the second week of April had reached 115 By the end of May, the numbers were down to 6 In 1927, the weekly deaths have been rather more than in 1925 or 1926 They show an increase towards the end of January from 13 to 18, and in February they have worked up from 24 at the beginning to 45 at the end In the first week of March there were 62 deaths The period of heaviest incidence seems to have shifted to a later period than last year, and 1927 may repeat the incidence of 1925

Treatment of Cripples

Both in Glasgow and Edinburgh active steps are being taken to improve the treatment of cripples Recently Glasgow established an orthopædic clinic. In Edinburgh, the movement for establishing a hospital for cripples is very active, and the promoters have every hope of a cordial response to the appeal when it is launched This hospital will be an important new departure in many respects The policy of a distinct hospital has been adopted after careful discussion with the leading hospital authorities in Edinburgh. The minimum aimed at is 75 beds and the estimated cost about £75,000

Pneumonia in Glasgow

Dr. A. S M MacGregor says that pneumonia in Glasgow was slightly more prevalent in January than in December, and that its treatment formed a large part of the work in the hospitals The municipal care of pneumonia remains on the high level set a few years ago The severity of the disease was roughly normal, the case-mortality being 30 8 per cent

Careful observations of air pollution by smoke and the local incidence of fogs are still being taken, and it is hoped that definite correlations may be established between respiratory epidemics and the proportion of soot and fogs Over a generation ago the late Dr Burn Russell indicated that a day would come when health measures could do no more for the environment, and when Glasgow would suffer from its ultimate disability—namely, the fact that it is a large crowded city lying mainly in a flat and chilly river valley Perhaps that day may come, but meanwhile there is a lot to do to get the Glasgow air clearer. Dr. Russell would probably have thought many times before devoting hundreds of beds to the municipal treatment of pneumonia

The Lister Centenary

The official programme of the celebrations to be held in Glasgow on April 1st has now been issued They will begin with a service in the Cathedral at 11 15 A M , which will be attended by the Lord Provost and magistrates, and representatives of the University, the Royal Faculty of Physicians and Surgeons, and other public and scientific bodies There will previously be a procession from the Royal Infirmary to the cathedral The Rev Lauchlan MacLean Watt, Minister of Glasgow, will preach the sermon, and afterwards the Lord Provost and corporation will give a luncheon in the City Chambers The toast of the Illustrious Memory of Lord Lister will be proposed by Sir John Bland-Sutton, and at the conclusion of the luncheon those who wish to honour Lister's memory by placing flowers on his statue will proceed to the Kelvingrove Park for the purpose, leaving the City Chambers about 3 o'clock The University of Glasgow will give a reception at 8 P M. The guests will be received by the Principal who will, during the evening, deliver an address of welcome Short addresses will also be delivered by Sir Hector Cameron, Sir George Beatson, Prof Murdoch Cameron, and Prof. Irving Cameron of Toronto

In connexion with the centenary, Messrs Jackson, Wylie and Co , will publish this month a book by Sir Hector Cameron, entitled "*Reminiscences of Lister and of his Work in the Wards of the Glasgow Royal Infirmary, 1860–69,*" and also "*Lister and the Lister Ward in the Royal Infirmary of Glasgow,*" by Mr Ernest Maylard , F.R F P S, Mr James A Morris, F R I B A., and Mr L W G. Malcolm, M Sc , with an *introduction by Lord Blythswood*

Lectures and Meetings

This year two distinguished lecturers have visited Scotland—Prof A S Eddington and Prof J. S Haldane When Prof Haldane's Gifford lectures are reprinted, we shall have a full and critical statement of the guiding value of the concept of vitalism, an idea which has great significance in medicine In the flux of physical and physiological ideas, as expounded by Eddington and Haldane respectively, there is a danger that both biology and physiology may glide into the older world where *virtus dormitiva* could, without shame, be regarded as an explanation Prof. Haldane is in no such danger, but the possibility nevertheless exists

Among other lectures recently given has been a series on the Problem of Maternal Morbidity arranged by the Edinburgh Women Citizens, and delivered by Dr Charlotte A Douglas, Prof R W. Johnstone, Dr Mary Macnicol, Dr Margaret Martin, and Dr W T Benson The last of them is to be given by Prof Munro Kerr on *Maternity as it Should Be* As a form of public education in health, nothing could be better than these lectures, and there is evidence of growing interest in the problems of maternity, which are to be the subject of discussion this year at the Annual Meeting at Rothesay of the Scottish Association of Health Visitors, Women Sanitary Inspectors and School Nurses This conference also will be addressed by Prof Kerr and Prof Johnstone

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Resignation of an Honorary Surgeon—Mr H J Godwin has resigned the position of honorary surgeon of the Hampshire County Hospital, which he has held for 23 years The annual Court of Governors has passed a resolution of thanks and regret

Correspondence.

"Audi alteram partem"

FEES FOR PATHOLOGICAL INVESTIGATION

To the Editor of THE LANCET

SIR —The British Pathologists Association was formed at a meeting held in London on Jan 7th last for the purpose of developing the application of pathology in relation to medicine and of protecting the interests of those engaged in its study and practice Membership is open to all registered medical practitioners engaged in the study and practice of pathology It is in the opinion of the Council of the Association very necessary that there should be in existence a schedule of minimal fees payable for pathological investigations for persons insured under the National Health Insurance Acts In the absence of such a schedule there is bound to be competition for this work with consequent fee-cutting and inefficient work

The Council of the Association has in hand the drafting of a schedule of fees for the various classes of laboratory investigations in general use in clinical medicine The fees in this schedule have been worked out on the basis of the cost per pair of hands per hour employed in a pathological laboratory under the direction of one of the members of the Association where the costs have been accurately controlled over a period of years The fees indicated may be regarded as the minima which can be expected to give a reasonable financial return when the procedures are performed in a laboratory subsidised from no outside source Copies of this schedule will be sent on request to all members of the Association for comment or suggested amendment It is proposed to submit this schedule to the Ministry of Health and to urge its adoption for pathological work performed for insured persons under any arrangements made either by the Ministry or by individual National Health Insurance Committees

The British Pathologists Association is working in the very closest touch with the British Medical Association from which it has received invaluable help The schedule of fees for pathological investigations is to be submitted to the Insurance Acts Committee of the British Medical Association at an early date, at a meeting at which the whole question of provision of a pathological service for panel patients will come under discussion

In approaching the Ministry of Health the British Pathologists Association wishes to be able to speak as representing the body of practising pathologists in this country Practising pathologists not already members of the Association are therefore urged to become so The annual subscription is £1 1s which includes entrance fee Medical practitioners desiring to join the Association should communicate with one of the members of the Council, which is constituted as follows Dr C Powell White (President), Victoria University, Manchester, Dr J G Greenfield, National Hospital, Queen-square, London, W C 1, Dr S C Dyke, Wolverhampton and Staffordshire Hospital, Wolverhampton, Dr A Renshaw, 16, St John-street Manchester; Dr E Wordley, South Devon and East Cornwall Hospital Plymouth, Dr G Hadfield General Hospital Bristol, Dr A. G Shera Princess Alice Memorial Hospital Eastbourne, Dr A F S Sladden General Hospital, Swansea; Dr W Grace Royal Infirmary, Chester. Dr R V Solly, Royal Devon and Exeter Hospital, Exeter

I am, Sir, yours faithfully,

S C DYKE,

Secretary, British Pathologists Association

Wolverhampton, March 10th, 1927

LEAD-SELENIUM COLLOID IN CANCER

To the Editor of THE LANCET

SIR,—I have been interested in the brief account by Dr A T Todd of the initial results obtained in some of the cases of malignant disease treated by him with "Lead-Selenium Colloid (" THE LANCET, March 12th, p. 575) The possibilities of a combination of these elements occurred to me, and doubtless to many others, long ago, and, as a matter of fact, our physical chemists had no difficulty in making an excellent colloid of lead selenide But what will ultimately prove to be the most useful preparation of lead no one can foretell at the present time Since many preparations of lead will probably be found to affect to a greater or lesser degree malignant neoplasms, what are really needed are comparative studies in regard to a large number of combinations rather than isolated observations of one particular preparation This is the line our own clinical investigations have taken I am, Sir yours faithfully,

Liverpool, March 12th, 1927 W. BLAIR BELL

THE TREATMENT OF HERNIA

To the Editor of THE LANCET.

SIR,—May I make the following observations in reply to the questions raised on the subject of the treatment of hernia by Mr Geoffrey Keynes and Mr T. P Dunhill[1] Although I have performed hernioplasty in children and healthy muscular adults, I do not consider it absolutely indicated in these cases of the oblique inguinal variety I am of opinion, however, that employment of this method shortens the convalescence and will enable the patient to undertake strong muscular exertion at an earlier date than otherwise In the case of both direct and femoral hernias hernioplasty should always be done

I have performed my flap hernioplasty in many patients over 50, with feeble muscles, and suffering from large oblique hernias Such patients belong to the class of case often refused operation by the surgeon Here hernioplasty is strongly indicated and will give most satisfactory results

As regards the second point also raised by Mr Dunhill, I am still of the opinion that Gallie and Lemesurier's technique, if accurately followed, may be improved upon, as by my method The use of stay knots and the method of joining sutures by perforating the previous strip is a complicated process and takes longer than the modification by means of the thread fixation stitch

I am, Sir, yours faithfully,

London, March 14th, 1927 ERNEST COWELL

RHEUMATISM AND MALNUTRITION

To the Editor of THE LANCET.

SIR,—I have read with much interest your summary of the Report on Heart Disease, together with the leading article upon it, and I am delighted to find therein corroboration of what I stated at the Cripples Conference last November I have pointed out that bad teeth, enlarged tonsils, damp houses may be associated with but are not the cause of rheumatic fever, whilst the one and only thing common to all these cases is malnutrition whereby they get none of the lime-bearing foods such as milk, eggs, and cheese In addition they aggravate this want of lime intake by the partaking of acids like vinegar, pickles sauces, and lemons Where two or three in a family fall a prey it is always found that their feeding habits differ from those who are not attacked This point is fully emphasised in my article on Heart Disease as a Deficiency Disease which appeared in the *Medical Press* for Sept 1st, 1926

I am Sir, yours faithfully

Swansea, March 14th 1927 G. ARBOUR STEPHENS

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[1] THE LANCET, March 12th, p 568

Obituary.

FREDERICK ARMITAGE SOUTHAM,

M A. OXF., F R C S ENG.,

EMERITUS PROFESSOR OF SURGERY IN MANCHESTER UNIVERSITY

THE death of Mr F A Southam on March 9th removes one of the greatest clinical teachers that the Manchester school has yet produced as well as one of the soundest and most brilliant of operating surgeons

Frederick Southam was the son of George Southam, honorary surgeon to the Manchester Royal Infirmary from 1847 to 1876, and connected also with the Royal School of Medicine in Pine-street He was educated at Rugby and Christchurch, Oxford, where he took a first-class in Natural Science, proceeding to Manchester for his medical training and qualifying in 1876 After holding various junior appointments to the Royal Infirmary, he was elected honorary assistant surgeon in 1880, serving on the surgical staff until his retirement in 1910 at the age of 60 On the outbreak of war in 1914 he was mobilised as Lieutenant-Colonel in the 2nd Western General Hospital, and again took charge of the surgical unit at the infirmary, in order to release Colonel J W. Smith to command this hospital

[*Lafayette, Manchester*

MR F. A. SOUTHAM

Mr Southam's memory will be cherished by many generations of students who went round the wards of the Royal Infirmary with him, here his enthusiastic interest in his subject and the careful preparations made to illustrate its every aspect compelled the close attention of the whole class His teaching was delightfully clear and concise and yet sufficiently dogmatic and definite to be easily remembered However foolish an answer a student gave he never showed the slightest impatience, but would proceed quietly to criticise it in detail He held strong and decided views on most surgical subjects, and usually insisted on following his own judgment, which had a way of proving remarkably accurate As an operator he was not only brilliant and dexterous but he remained very cool and calm during the performance of the most extensive operative procedures, and it was always, writes one of his colleagues, a great surgical treat to watch him amputate at the hip by the Furneaux-Jordan method without a tourniquet He was not, perhaps, as scrupulous as some in arresting hæmorrhage, and "a little oozing" was one of his common expressions—so much so that the students were wont to say that he would make use of this expression were he to cut the aorta itself

He held many other appointments outside the infirmary, being attached to the Christie Hospital, the Cancer Pavilion and Home, the Northern Hospital for Women and Children, and the Jewish Hospital For many years he occupied the chair of clinical surgery in the University, and he examined in surgery both at Manchester and Oxford His private practice became very engrossing, but he never allowed it to interfere with his hospital duties From his earliest years Mr Southam was especially interested in the surgery of the bladder and urethra, he contributed an article on "Injuries and Diseases of the Bladder" to the Medical Encyclopædia, an Analysis of 120 operations for Vesical Calculi, and he received honourable mention for a Jacksonian Prize dissertation on Tumours of the Bladder He was the author of "Regional Surgery, a Manual for Students," and his article on "Fractures" in Treves's "Manual of Surgery," was regarded as the best description of fractures available at that time He was the first surgeon in Manchester to stand up for the interval operation in appendicitis, then being advocated by Treves

Mr Southam was of an intensely shy disposition It used to be said of him that whenever he met a student coming down the street he would, if possible, avoid meeting him, but, if not possible, he would keep his eyes downcast until just the moment of passing when he would raise them with a quiet smile Though small in stature he had an impressive personality, and was respected as well as beloved by his students and colleagues who elected him at one time or another to the presidency of all the local medical and pathological societies An old Oxford Blue in sprint racing, he kept up his interest in athletics as far as his time permitted His wife predeceased him by some years He leaves two sons, the elder of whom is vicar of St Mark's, Portsmouth, the younger, with whom he lived, being Mr A H Southam, a Hunterian lecturer at the Royal College of Surgeons of England this year

THE LATE DR. SHILLINGTON SCALES

Dr Stanley Melville sends the following appreciation of Dr Shillington Scales, an obituary notice of whom appeared in THE LANCET of March 12th

"The ever-thinning line of veterans in the field of radiology is the poorer by the passing of Francis Shillington Scales To those of us who were associated with him in training candidates for the diploma, in serving on the Special Committee at Cambridge, or in conducting the examinations, the zeal and tireless enthusiasm of the man were revealed He took no narrow academic view of the training, and to his lasting credit was his insistence upon wide clinical experience for the radiologist For this reason he kept in close touch with the Education Committee of the British Institute of Radiology in London and with the great provincial medical schools A man with a less wide outlook might have been tempted to confine the teaching to Cambridge itself, with the result that there would have been by now a multiplicity of diploma-conferring bodies in existence As it was Shillington Scales always viewed with concern anything that was likely to upset the very happy relationship that had existed from the beginning with the teachers in the metropolitan schools and with great universities, such as Manchester and Liverpool Shillington Scales was an excellent pathologist and microscopist, and he had the gift of being able to impart his knowledge to others It was always noted that the men who came to London for the final two months' clinical training had a sound knowledge of pathology He was a man of orderly mind and habit, and his system of filing and indexing was of inestimable value to him in preparing his lectures and to the *Journal of Radiology* for which he undertook to supply references to the literature Shillington Scales's post will in due course be filled, and no doubt adequately filled, but he himself will be sadly missed by many friends who had learnt to appreciate him for his kindly personality and his selfless enthusiasm in working for an ideal"

G B F Reece Royal Dental, R Rosefield, Univ Coll, J F Y Sellin, Bristol J Shwer, Royal Dental R C Smart, Manchester E N Stevens, Guy's, N R Thompson, Royal Dental, F S Tinsley, King's Coll, R G J Tovey, Royal Dental, R C Virgo, London, R W Waldie, Guy's, F A Walter Manchester T W Watts, F T Wilkinson H F J Willis, and M Wolman Guy's, A A Wood, Univ Coll, C H Woodham and N C Yendell, Guy's

The Diploma of M R C S was conferred upon Dorothy Bolton, M B Calcutta, of Calcutta and Charing Cross Hospitals

Diplomas in Tropical Medicine and Hygiene were also conferred (in conjunction with the Royal College of Physicians) upon the following 24 candidates (6 women and 18 men) who have studied at the London School of Hygiene and Tropical Medicine London and have passed the examination held by the Conjoint Board —

S Annecke, E G Anthonisz A C L O'S Bilderbeck, Catherine Y Burne, N P Dalal, T B Gilchrist, R D Gross, Kathleen M Halloran R G Keays H H W Kumm, F R Lockhart A D Loganadan, P H Martin F R L Miller Margaret M Nolan, J Portelli, Helen M Russell E G Sayers H M Shelley Viva E K Stuart H S Townsend, Bertha Williamson, C J Wylde, W A Young

University of London —Applications for grants under the Thomas Smythe Hughes Medical Research Fund should be made between May 2nd and June 15th Applications are also invited for the Laura de Saliceto Studentship for the Advancement of Cancer Research, which is of the value of £150 a year and may be held in conjunction with a physiological, pathological, or clinical appointment Candidates may be of either sex, and need not be members of the University The studentship is awarded for not less than two years Particulars of the Fund and Studentship may be had from the Academic Registrar A University Studentship in Physiology (£50 for one year) will be awarded to a suitable student or graduate of the University Applications must be received by the Principal Officer on or before May 31st

Cambridge University Medical Society An Interesting Tour —In the magazine of the Cambridge University Medical Society for the Lent Term there is published a provisional programme of a tour to be taken by the members through the laboratories hospitals and clinics of Germany, Czecho-Slovakia Austria and France The party will be escorted round the University medical schools at Hamburg, Berlin, Dresden, Prague, Vienna, Munich, Strasbourg and Paris It is proposed to leave Southampton on August 24th The time to be allotted at each centre is not yet published in the programme, but the railway tickets will be valid for 33 days The tour has been economically planned and the general amenities of the journey have been studied The cost is £45, and the booking arrangements are in the hands of Messrs W W Bell & Co 6 King's Parade, Cambridge to whom *all* questions about the route and passports should be addressed An entrance fee of £2, £3, or £4 is payable, according as to whether entry is made on the first day of April, the first day of June, or later, while no applications will be considered after July 14th, the first £2 of the entrance fee counts as part of the fare These details should be borne in mind by those who propose to join the tour, as, in order to secure reduced railway fares, all *tickets for the party must be issued at the same time*, and members if they withdraw after the tickets have been issued, may forfeit the cost The tour is open to ladies as well as to honorary members in the Cambridge University Medical Society

Fellowship of Medicine and Post-Graduate Medical Association —On Thursday, March 24th, at 5 P M, Dr R Travers Smith will lecture at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, on Emergencies in Neurological Practice On Tuesday, March 22nd, at 2 P.M, Mr N C Lake will give a clinical demonstration in surgery at Charing Cross Hospital, and at 4 P M on March 23rd and the two following days Mr Levy, Miss Mann, and Mr Williamson-Noble will give special demonstrations in ophthalmology at the Central London Ophthalmic Hospital The lectures and demonstrations are free to members of the medical profession An all-day comprehensive course in Orthopædics, lasting until April 2nd is in progress at the Royal National Orthopædic Hospital A two weeks course was begun on March 21st at the London Temperance Hospital for the benefit primarily of the general practitioner (4 30-6 P M) From March 28th to April 9th the Queen's Hospital will hold a special course in Diseases of Children, instruction at this hospital being chiefly clinical The Royal Eye Hospital will undertake a series of afternoon demonstrations on the Diagnosis and Treatment of Diseases of the Eye from March 28th to April 8th The Fellowship arranges for practical courses in anæsthetics and obstetrics, and *also* makes arrangements for clinical assistantships in gynæcology Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship, at 1, Wimpole street, London, W 1

Royal Faculty of Physicians and Surgeons of Glasgow —*At the monthly meeting of the* Faculty held on March 7th, Dr Herbert Frederick Blacklee was admitted (after examination) as a Fellow of Faculty

Royal Microscopical Society —The Conference at Liverpool originally arranged for the third week in March has been postponed till March 29th, 30th, and 31st, owing to difficulty in securing hotel accommodation

Hunterian Society —The third dinner meeting of this society will be held at Simpson's Restaurant 2 and 3, Bird-in-Hand Court, 77, Poultry, Cheapside, on Monday, March 21st at 7 30 P M A discussion on the Bottle of Medicine will be opened by Dr L G Glover and Dr Thomson Brown

Royal Sanitary Institute —A sessional meeting will be held on Friday, March 25th at 5 P M, in the Town Hall Leeds, when a discussion on Cancer will be opened by Sir Berkeley Moynihan, followed by Prof R D Passey, Director of Cancer Research, University of Leeds The chair will be taken by Dr G F Buchan

University of Manchester —Prof H S Raper has been appointed dean of the medical school as from July next Mr P W Clutterbuck has been appointed assistant lecturer in physiological chemistry, Mr E N Willmer assistant lecturer in comparative physiology and Dr Eugenia R A Cooper assistant lecturer in anatomy The Hill Prize in biochemistry has been awarded to Mr Eric Boyland

Medico-Legal Society —A meeting of this Society will be held at 11 Chandos-street Cavendish-square, W 1 on Thursday, March 24th, at 8 30 P M, when *Sir Bernard Spilsbury will show a Hat* from a Fatal Case of Shooting and give a short communication thereon Dr Letitia Fairfield, C B E, will read a paper entitled Some Psychological Reactions *of the Physiological Crises in* Women, and a discussion will follow Members may introduce guests on production of a Member's private card

Listerian Society King's College Hospital London —The centenary celebrations of the hospital in connexion with Lister are to be held on April 4th, and will take the form of addresses by house surgeons and dressers who worked under the great discoverer, the subject being the Personality of Lord Lister These include Sir Watson Cheyne Major-General G Carleton Jones, Sir Lenthal Cheatle, Dr L V Cargill, Dr Allan Macnab, Dr H Distin, Dr H Perry, Dr R A. Gibbons, and Dr A Bousfield Mr Hamilton Russell of Melbourne may also be present The proceedings will start at 8 and end at 10 P M. There will be refreshments, and the St Thomas's Hospital Band will assist in the proceedings

The Central London Ophthalmic Hospital Medical School —A pleasant dinner of the past and present students was held at the Langham Hotel on Friday, March 11th, Mr Ernest Clarke in the chair The toast of the hospital and school was proposed by the Chairman, who traced the growth of the hospital since the early days when he was elected *to the staff* This *was felicitously replied to, for* the hospital by Mr C M Wilkin, Chairman of the Board of Management Mr F A Williamson-Noble, the Dean replied for the school and gave an interesting account of its spreading activities Mr Stephen Mayou proposed the health of the visitors which was replied to by Sir John Parsons, and Mr A A Levy proposed the Chairman's health

Conference on Tuberculosis —The Tuberculosis Society and Society of Superintendents of Tuberculosis Institutions are holding a joint provincial meeting at Oxford from April 7th to 9th The meetings will be held in the Pathological Lecture Theatre On Thursday, *at* 2 30 P M., Prof Lyle Cummins will read a paper on the Bovine Tubercle Bacillus in Immunisation, a discussion will *follow. At* 10 A M on Friday Dr Leonard Hill will open a discussion on the Defensive Mechanism of the Body against Tuberculosis from the Physical and Chemical *Aspect*, Mr G R Girdlestone and Dr E Obermer will read papers dealing with the same subject On Friday, *at* 2 15 P M, *Dr* John Freeman will speak on the Defence of the Body from the *Bacteriological* and Immunological Side He will be followed *by Dr A G* Gibson on Secondary Infections in relation to the Progress of Pulmonary Tuberculosis and Dr A D *Gardner on the Laboratory Diagnosis* of Tubercle On Saturday at 10 A M, Dr J Middleton Martin, Dr D P. Sutherland, and Dr Peter Edwards will discuss the Gaps and Flaws in the Public Health *Administration* of Tuberculosis On Saturday *afternoon* members are invited to visit the Wingfield Orthopædic Hospital and the Osler Pavilion Accommodation will be available for both sexes at Somerville College, at an inclusive charge of £2 for the period of the meeting, or pro rata Those wishing to be present are asked to communicate as early as possible with Dr F J Blackmore the Tuberculosis Dispensary, Maxey Road, Plumstead, S E 18

THE PENALISATION OF THE TUBERCULOUS

To the Editor of The Lancet

Sir,—An assistant in a good sanatorium applied for a similar post in a county sanatorium where there is a pension scheme He had an interrupted undergraduate career through a breakdown with pulmonary tuberculosis He made a good recovery and was advised to take up sanatorium work He secured a place in a sanatorium where research work is done, and he was never one day off duty He wished to advance and his chief strongly advised him to approach other sanatoria, and he applied for another post He got on the list at once, when he was specifically asked why there had been a break in his studies, and made no concealment But he was told that he ought to have announced this in his application, for then "they would not have bothered about him"

The applicant is a friend of mine, and said that he did not mind losing the post, being in a better sanatorium, though on less pay, but he resented the attitude displayed towards him

Can nothing be done to prevent this penalisation of those who have been tuberculous ?

I am, Sir yours faithfully,

March 15th, 1927 M O

CAN TAR CAUSE PULMONARY CANCER?

To the Editor of The Lancet

Sir —I was greatly interested by your note under the above heading on p 582 of last week's issue I think it is generally admitted that pulmonary cancer has become much commoner in late years and I have sometimes wondered whether this may not be due to the inhalation of dust from tarred roads

I am, Sir, yours faithfully,

Robert Hutchison

Devonshire place, W, March 14th, 1927

THE IMMEDIATE TREATMENT OF THE SEVERELY INJURED

To the Editor of The Lancet

Sir,—Accidents, especially those caused by rapidly moving traffic, are on the increase Every year a number of these patients are brought to hospitals either dead or in a dying condition A further number are taken to their own houses or to nursing homes in a similar condition

This irrational performance is likely to continue until it is generally recognised that a person, when injured so severely as to be nearly dead, is not in a fit state to be carried any distance, no matter what his destination, and that a journey of any length, for a patient who is only just alive, is the most certain method of obliterating his already small chance of survival

The desperately injured man, if he is in a building where he can be kept warm and at rest, should be kept and treated where he is until he has rallied If he is in the open and exposed to wind and weather, he should be taken to the nearest available place of shelter and treated there until he is fit to stand the longer journey

Those responsible for ordering and carrying out the transport, over long distances, of the severely injured who are nearly dead, the ordering of "immediate removal to hospital," so often appearing in the newspapers, are chiefly medical men, police officers, and ambulance workers In justice to the two latter, it should be remembered that, very often, they are only carrying out the orders of the doctor who has been called to the case

First-aid and ambulance lecturers can help by teaching their pupils the folly of carrying long distances patients who, as the result of an accident, are nearly dead But reform, in the immediate treatment of the severely injured, to be effective, must begin in the practice of doctors Example is better than precept

I am, Sir, yours faithfully,

Plymouth, March 5th, 1927 C Hamilton Whiteford

Medical News.

University of Oxford —At a recent congregation the following degrees were conferred —

D M —V S Hodson

B M —D A Robertson, C S Broadbent, and M D Bower

The *Sir William Dunn School of Pathology* was handed over to the Vice-Chancellor of the University by Mr C D Seligman, on March 11th, in the presence of a representative gathering The building, of which we published a picture last week, has in the basement a low-pressure chamber large enough to enable physiological and pathological observations to be made on the effect of altitude on men. A departmental library will occupy part of the ground floor, the rest of the building being devoted to laboratories for teaching, and research animal rooms Accommodation and equipment for some 50 undergraduates and 25 research students is provided

The *Rolleston Memorial Prize*, which is now of the value of about £100, is awarded every two years, under the conditions stated below, for original research in animal or vegetable morphology, in physiology and pathology, or in anthropology No candidate will be eligible (1) who has not either passed the examinations for the B A or B M degree at Oxford, or for the B A or M B degree at Cambridge, or been admitted as an advanced student, or as a student for the degree of B Litt or B Sc at Oxford or as a research student for the degree of M Litt or M Sc or Ph D at Cambridge, (2) who has exceeded a period of six years from attaining one or other of these qualifications, or from attaining the first of such qualifications if he has attained more than one, (3) who has exceeded ten years from his matriculation The next award will be made in Trinity Term, 1928 Candidates must forward their memoirs to the Registrar of the University before March 31st, 1928

University of Cambridge —At recent congregations the following degrees have been conferred —

M D —W N Goldsmith

M B and B Chir —B E Ahrens W A Bourne, J C P Grey, H E Nourse, W H Palmer, G Simon, and D G Shields

M B —R W Cuningham

B Chir —R W B Ellis, H J Heathcote, W L Roberts, F C Roles, and H L Wilson

Royal College of Surgeons of England —At a meeting of the Council of the Royal College of Surgeons on March 10th, Sir Berkeley Moynihan, President, in the chair, the following were elected Honorary Fellows subject to their personal attendance at the College —R Alessandri, Professor of Surgery, Rome University, E W Archibald, M D, Professor of Surgery and Clinical Surgery, McGill University, F. A B Krogius, Professor of Clinical Surgery, University of Helsingfors, P Lecene, Professor of Surgical Pathology, University of Paris, R Leriche, Professor of Clinical Surgery, University of Strasbourg, R Matas, M D, LL D, Professor of Surgery, Tulane University of Lousiana, New Orleans, and C Willems, Professor of Operative Medicine, University of Liege Sir Holburt Waring was re-elected as the representative of the college in the General Council Mr Victor Bonney was elected as the representative of the College on the Central Midwives Board Mr, V Warren Low, C B, was re-elected as the representative of the College on the Senate of the University of London. Dr Geo Parker, M R C S, was elected Thomas Vicary Lecturer for the ensuing year A report was received from the Committee which had had under consideration the Resolution carried at the Annual Meeting of Fellows and Members in November last regarding the question of admitting Members to direct representation upon the Council of the College A recommendation from the Committee that the views of the Fellows be ascertained was adopted, and the exact form of question to be put to the Fellows will be settled at a future meeting of the Council

Licences to practise dentistry were conferred upon the following 56 candidates (54 men and 2 women), who have passed the requisite examinations and have complied with the by-laws —

I Ackers and F J Ardouin, Royal Dental, L F Balding, C H Bandy, G H Billison, and J D Bowling, Guy's, B Braude and P B Campion Royal Dental R L Cautley, Guy's, A H Chanoch Royal Dental S I Cohen W A Corry, A C Davies R L Duchesne, and T G Emberson, Guy's, S Feitelberg and H E Glover, Royal Dental, A E Grace, Guy's, G R Hall, King's Coll, V L L Hall and J H F Hilton, Guy's, Doris M Hobbs Royal Dental, G J Hollis Guy's, H Hopson, Liverpool, A S Jones, London F W Jones, Royal Dental, C S Laurens, Guy's B Lieb and S Lizerbrum, Royal Dental, G F H McCormick, M R.C S, M R C P, Univ Coll, G N Manley, Royal Dental, H E B Mash, King's Coll, A. L Murray, Royal Dental, W H G North Guy's Frances E Osborne Royal Dental, E A Page, London, F R Phillips and

Meckel's diverticulum was the unclosed part of the omphalomesenteric duct, whilst the pouch of Rathke usually vanished completely in a few years Alternatively, diverticula might develop and in normal circumstances disappear in fœtal life. Sometimes this atrophy and disappearance might not take place, so that in adults the diverticulum persisted. Diverticula from the stomach, duodenum, and jejunum were frequently found in the fœtus and showed little masses of cells at their extremities, identical with the cells from which the pancreas arose It seemed that a whole series of efforts were made by the organism to develop the pancreas, the only ones which survived being those connected with the ducts of Wirsung and Santorini Diverticula were classified as (1) Those which arose as a bud from the wall of the intestine during development and contained all the coats of the bowel at that point, these were spoken of as congenital in origin and true in structure (2) Those occurring after development was complete, as a result of some abnormal process, these never contained all the intestinal coats and were called acquired and false (3) Pulsion or traction diverticula A traction-pulsion variety also occurred. The changes which might take place in a diverticulum were inflammation in and around the sac, suppuration, sloughing and gangrene, perforation, formations of adhesions, carcinomatous change, and rotation of the sac

Diverticulosis, he thought, was much more frequent than had been supposed, but often it did not require surgical intervention He did not believe in giving these subjects food which left little residue, they should take as much paraffin as they could stand, and have a weekly clearance of the bowel by taking a large dose of aperient Sir D'Arcy Power proposed, and Sir William Willcox seconded, a vote of thanks to Sir Berkeley Moynihan

Glasgow Samaritan Hospital—Lady Blythswood has opened a new wing of the Royal Samaritan Hospital for Women. The building and its equipment have cost £80,000, £78,000 of which was raised by a bazaar held in 1924

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 5TH, 1927.

Notifications—The following cases of infectious disease were notified during the week—Small-pox 529 (last week 438), scarlet fever 1178, diphtheria 1006, scarlet fever 31, pneumonia 3375 (last week 3828), puerperal fever 35, puerperal pyrexia 115, cerebrospinal fever 12, acute poliomyelitis 17, acute polio-encephalitis 4, encephalitis lethargica 49, continued fever 1, dysentery 6, ophthalmia neonatorum 109 No cases of cholera, plague or typhus fever was notified during the week

Of the cases of small-pox 96 were reported from Wales, 1 only from Glamorgan, the remainder from various parts of Monmouth, with heaviest incidence on the town of Abersychan. The 128 cases from the West Riding of Yorkshire were reported chiefly from Sheffield 28, Conisbrough 28, Swinton 14, Mexborough 11, and Doncaster 9 The county of Lancaster was free During the week ended March 12th, further cases of small-pox were notified from the mining valleys of Monmouthshire, bringing the total number discovered up to close on 270 There is, however, no extension of the area of the outbreak A fourth definite case of small-pox has occurred in Newport The proposal to use Usk Prison as a temporary small-pox hospital has met with much opposition from the inhabitants of Usk and the farmers using the market in that town The prison, however, has been acquired, but will not be used unless it is absolutely necessary No further cases have been reported from the County of Glamorgan

Deaths—In the aggregate of great towns including London there were no deaths from small-pox 2 (0) from enteric fever, 73 (0) from measles, 5 (1) from scarlet fever, 216 (28) from whooping-cough, 62 (16) from diphtheria, 53 (9) from diarrhœa and enteritis under two years, and 898 (69) from influenza The figures in parentheses are those for London itself. The influenzal deaths for the week ended Mar 12th show a further substantial diminution, both in London and in the great towns generally, the figures being 105 Great Towns 572, London 49, Liverpool 22, Manchester 58, Birmingham 33, Sheffield 28, Bolton 22, and Stoke-on-Trent 21

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Sale of Food and Drugs Bill.

The Sale of Food and Drugs Bill which has been introduced into the House of Commons by Mr Jacob was considered by Standing Committee A on Tuesday, March 8th. Mr Short was in the chair Clause 1 provides that—

> "Where any Regulations made under the Public Health (Regulations as to Food) Act, 1907, prescribe the compositions of any article of food or drink or prohibit or restrict the addition of any preservative or other ingredient or material to any such article, such Regulations shall be deemed for the purposes of the Sale of Food and Drugs Acts, 1875 to 1907, to define the nature, substance and quality of the article as regards the presence or amount of any ingredient or material specified in the Regulations and to determine whether the addition of any such ingredient or material, and, if so, what amount thereof renders the article injurious to health."

Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health) moved an amendment designed to make it clear that the Public Health Acts of 1875 and 1896 were incorporated in this measure. The amendment was agreed to Sir Kingsley Wood moved another amendment to provide that the regulations should be conclusive, not merely in regard to the presence or amount of such added ingredients as were referred to earlier in the Bill—that was preservatives or colouring matter—but also in so far as they dealt with this point in regard to natural constituents as well The Minister of Health was advised, he said, that he had no power to prescribe standards for foods generally by regulations under the Act of 1907, and therefore without any further statutory authority no article other than dried or condensed milk could be affected by this particular amendment The amendment was agreed to A further Government amendment was also agreed to, the purpose of which was to save the local authorities from having to prove that the presence of a forbidden preservative, or the excessive amount of restricted preservative, was injurious to health. This amendment fixes a standard as designed in the Bill The Committee stage of the Bill was completed and it was ordered to be reported to the House

Midwives and Maternity Homes (Scotland) Bill.

The Midwives and Maternity Homes (Scotland) Bill, presented in the House of Commons by Mr Barclay-Harvey, supported by Sir G Berry, Lt-Col. Fremantle and others is a measure designed to extend to Scotland the chief provisions of the Act which was passed last year for the control of midwives and maternity homes in England.

Mental Deficiency Bill.

The text of the Mental Deficiency Bill, which has been introduced in the House of Commons by Mr Crompton Wood, has now been issued In a memorandum attached it is explained that the main object of the Bill is to amend the definition of defectives which are contained in the Mental Deficiency Act, 1913 Under these definitions only persons who were mentally defective from birth or from an early age come within the Act, and there is thus no power to deal with cases where the defectiveness arises at a later stage. An illustration is afforded by the disease known as encephalitis lethargica, though these particularly need the sort of care and treatment which can be provided in a mental deficiency colony The effect of the Bill (Clause 1) is to eliminate the words "from birth or from an early age" and to bring within the scope of the Act all cases of mental deficiency which arise before the age of 18, whether due to inherent causes or induced by disease or injury Under the existing Act a defective may be placed under care if he is found to be also "neglected, abandoned, or without visible means of support or cruelly treated." Clause 2 (1) of the Bill extends this provision to a case where the care or training which the defective requires cannot be provided in his own home. *Subsections* (2) and (3) of Clause 2 are designed to provide that any case may be dealt with by any one of the three methods recognised by the Act—viz., providing supervision, placing under guardianship, or sending to an institution, while Clause 3 merely introduces a drafting amendment into the Act of 1913 to make it clear *that Section 4 of that Act* only applies to the two latter of these methods Clause 4 will enable an order to be made on a petition without the consent of the parent or guardian, if owing to his being abroad the attempt to obtain it would unduly delay the proceedings on the petition Clause 5 provides that if a patient is away from an institution on leave of absence he need not be brought back to the institution for examination in connexion with the continuation report required under Section 11 of the Act. Clause 6 makes explicit the power and duty of local

Manchester Students and Hospitals —In spite of bad weather, Manchester students on Shrove Tuesday succeeded in collecting £12,937 for local hospitals

Brighton County Borough Mental Hospital — On March 12th the new electrical installation was inaugurated at this institution at Hayward's Heath by Sir Frederick Willis, Chairman of the Board of Control

British College of Nurses.—This College, which has been endowed with £100,000 by an anonymous donor, has secured 39, Portland-place, London, W 1, as its headquarters The College and its governing body are composed entirely of registered nurses, whose object is stated to be to raise the standard of post-graduate nursing education and secure the economic stability of the nursing profession

London Traffic Deaths —The Ministry of Transport has convened a conference to be held on March 21st to consider what steps can be taken to reduce the number of street accidents in the metropolis During 1926 no fewer than 1020 persons were killed in street accidents in the Greater London area, while 47,213 were injured During the last six years the number of fatal accidents due to street traffic has increased by 55 per cent. and the number of injuries has increased by 125 per cent

Ireland and the Royal Army Medical Corps — Some uneasiness was caused a few weeks ago, writes our Irish correspondent, by an announcement about admissions to the R A M C It was stated that a certain number of commissions would be given on the nomination of universities and medical schools, and a list of the universities and schools to which was given the privilege of nomination was appended In the Irish Free State only the University of Dublin was given this privilege, and neither the National University of Ireland (with its three schools at Dublin, Cork, and Galway), nor the Royal College of Surgeons in Ireland was mentioned As both these bodies have contributed very largely in the past to the personnel of the Royal Army Medical Corps, their omission from the list of nominating authorities gave rise to some uneasiness lest their graduates and licentiates should be at a disadvantage in the future The matter was taken up with the Director-General of the R A M C. by the British Medical Association, at the request of its Irish Branch, and assurances have been given that the nomination of graduates or licentiates from any of the Irish schools will be considered on equal terms in the future

University of London Animal Welfare Society. At a meeting of this Society held at University College on March 10th, Sir Arthur Mayo-Robson in the chair, a lecture entitled Animal Welfare from the Point of View of the Veterinary Profession was given by Prof F T G Hobday. The Chairman said that as a nation we prided ourselves on being humane, but so long as we permitted the painful slaughter of 40,000 beasts in England every working day, when, by simple and certain methods they could be rendered unconscious before slaughter, he feared that we could not honestly claim to be the most humane nation, since Holland, Switzerland, Sweden, Germany and other countries legislated for compulsory humane slaughter So long as the Ministry of Health's by-law was only permissive it would never be universally adopted, and it entirely depended on the public whether it was made compulsory He considered that the work of the Society was well worth the attention of educated men Prof Hobday said that members of the veterinary profession could do much to help the Society in its first aim—namely, "to disseminate a knowledge of the needs of animals" The second aim, "to initiate a movement which shall extend to Continental and other universities," was especially well thought out, for in certain of the continental countries animals were not always well cared for, and a movement initiated through the universities would attack the problem at the educational fountain-head After cordially welcoming the advent of the woman veterinarian, Prof Hobday dealt with faulty feeding and housing, unreasonable chaining of dogs, and cruel methods of destroying vermin, such as rats, mice, and rabbits, he exhibited the humane snare recommended, for want of a better, by the Royal Society for the Prevention of Cruelty to Animals As regards humane slaughtering, though the pole-axe and the hammer produced instantaneous unconsciousness when the blow was effective, the humane killer was far easier to use For destroying small animals electrocution or the lethal chamber should be used, preceded in the case of the dog by a dose of morphia. New regulations had recently been made by the Ministry of Agriculture with regard to the importation of animals by sea, and it was to be hoped that they would be as successful as those by which the shameful export of decrepit horses had been brought to an end Speaking of free veterinary clinics for the poor, Prof Hobday claimed that the animals of the poor were entitled to skilled diagnosis and treatment, and should not be left to the amateur without professional training

An Industrial Experiment with Vitaglass — Messrs Ferranti, Ltd, electrical engineers, have had about 33,000 square feet of Vitaglass put into the windows and skylights of a new extension of their works at Hollinwood, near Manchester About a third of the 400 workers on the two floors thus fitted are under 21 years of age It is hoped that after a year's experience it may be possible to compare the efficiency and sickness-rates of these employees with those of workers in the old building

The Hygiene of Married Life and Parenthood —A course of lectures is being given at Carnegie House, 117, Piccadilly, London, W 1, on Wednesdays at 8 30 p m. The next lecture will be given on March 23rd by Mr. Leonard Phillips, who will deal with the Hygiene of Pregnancy The subjects of the remaining lectures will be the Pros and Cons of Contraception, by Dr Eric Pritchard (March 30th), Problems affecting Husbands and Wives as Fathers and Mothers, by Dr J A. Hadfield (April 6th), and the Foundations of Happy Parenthood, by Dr Flora Shepherd (April 13th) Tickets may be had from the Secretary of the National Association for the Prevention of Infant Mortality, Carnegie House

India and the General Medical Council — On Feb 17th the Delhi Medical Association entertained Sir Norman Walker, who is visiting India on behalf of the General Medical Council of Great Britain Dr J K Sen, the President, took the chair In the course of his address Sir Norman Walker said that the Council was neither a legislative body nor a trade-union Its sole aim was the welfare of the public which it guarded by keeping a register of those who acquired a certain standard of skill in diagnosis and treatment. The Council in no way interfered with the Universities by laying down a definite course or framing a curriculum, but provided against the unfit by supervision of examination and by fixing the age of the candidates Nothing was done to weaken the control of the Universities, and friendly rivalry among the various Universities was maintained The Universities would be well advised to leave off ploughing lonely furrows and concentrate more upon coöperation and coördination. In reply to Col H A Gidney, who discussed the question of establishing an Indian Medical Council, Sir Norman Walker referred to Part II of the Medical Act of 1886, which laid down that the King in Council might extend the Act to apply to any British Possession or foreign country The procedure was for that country, or its universities, to apply through the General Medical Council In India, the formation of such a body would be welcome if only to facilitate the work of the General Medical Council. Dr A. C Sen appealed to Sir Norman Walker to assist in establishing a General Medical Council in India, which alone could tackle problems such as research into indigenous drugs, preparation of an Indian pharmacopœia, legislation for standardisation of pharmaceutical and biological preparations, prohibition of unqualified medical practice, revision of the medical curriculum, and employment of independent medical men in Government hospitals

At the dinner which followed, Dr Bazaz proposed the toast of the Guests, and Dr S P Shroff the toast of Success to the Medical Profession The last toast was the Delhi Medical Association, given by Dr Hari Ram. Colonel Gidney, replying for the guests, laid stress on the Anglo Indian being regarded as Indian first, and deplored the persistence of such anomalies as those connected with the posts of subassistant and assistant surgeon, and the privileges of the Indian Medical Service and Royal Army Medical Corps Dr Rama Rao, who followed, referred to his Indian Medical Education Bill and its poor prospects of success unless it were supported by Government He hoped to enlist support by removing certain clauses from the Bill

The proceedings ended with a vote of thanks to the chair by Dr H Sen

Harveian Society —At a meeting of this Society on March 10th, Dr E Le Fevre Payne, the President, in the chair, Sir Berkeley Moynihan delivered the Harveian Lecture for 1927, on Diverticula of the Alimentary Canal The lecture was illustrated by photographs and skiagrams The Oxford Dictionary, said Sir Berkeley Moynihan, defined a diverticulum as "a little wayside house of ill-fame," a title which was well deserved In the alimentary canal it was due to protrusion of the mucous membrane from the lumen of the bowel, the other coats might or might not participate Budding from the intestinal wall was an essential step in the formation of various organs Examples of diverticula were (1) the pancreas, which maintained connexion with the alimentary canal through its ducts, (2) the appendix which had no differentiation into a duct, and (3) the thyroid which was a ductless gland The foramen cæcum on the dorsum of the tongue was the only patent part of this diverticulum Diverticula might develop normally in fœtal life but their connexion with the gut in the adult might be curtailed or disappear Thus

Service or not. That was absolutely wrong The medical service in the Navy was a great service and the men in it were as able as could be found anywhere but it should not rest with one man to decide in a matter of life and death of this kind No man was infallible not even a doctor and if a man was going to be thrown out he should have the right to go before a Board. He suggested that if they had a Fleet Surgeon a civil practitioner and a man like the Town Clerk of Portsmouth and those gentlemen would give their services for nothing the Navy would be absolutely satisfied to abide by their decisions 196 men were thrown out of the Service this year for tuberculosis alone. Only 6 of them or about 3 per cent were given any pension for the illness they had contracted in His Majesty's Service Men suffering from tuberculosis dare not go sick, because if they did they knew that the Fleet Surgeon would throw them out on the beach That was a wicked thing for any Government to do He urged that these men should be allowed to appeal to the Board of Admiralty Such an appeal should be made automatic and a matter of right

Lt-Col HEADLAM (Parliamentary Secretary to the Admiralty) replying to Sir B Falle said that everybody who knew anything about the subject must sympathise most profoundly with the point of view which the hon Member had put forward He doubted very much whether they could get other medical opinion quite so easily as Sir B Falle seemed to imagine No one who had had anything to do with medical boards or medical officers generally would think that they were going to change their views so rapidly as the hon Member seemed to think Whether or not an automatic appeal to the Board of Admiralty would help the men he rather doubted but if Sir B Falle would let him know of a definite case where men had been hindered from appealing to the Admiralty the matter should be looked into

The motion was agreed to

Veterinary Work in Colonies and Protectorates

Mr RAMSDEN asked the Secretary of State for the Colonies what sums had been expended from crown colony and other funds in obtaining expert advice with regard to veterinary matters affecting the crown colonies protectorates, and mandated territories —Mr AMERY replied I assume that my hon friend does not refer to expenditure on the maintenance of Veterinary Departments and their staffs or to such expert advice as is given in the ordinary course of their work by the Imperial Bureau of Entomology or by the Bureau of Hygiene and Tropical Diseases in its Veterinary Bulletin" but to special expert advice A grant of £10,000 has been made from the Empire Marketing Fund for the purpose of carrying out an investigation into the mineral content of natural pastures in Kenya, acting under the advice of Dr J B Orr of the Rowett Research Institute. It is not possible to state how much of this sum will actually be expended in Kenya At the request of the Nigerian Government Dr P J du Toit Deputy Director of Veterinary Education and Research in the Union of South Africa visited the Colony in January last to investigate mineral deficiency in pastures and to report generally on local Veterinary matters The cost to Nigeria of the visit was approximately £450

The Tuberculosis Order 1925

Mr BUXTON asked the Minister of Agriculture the number of cows slaughtered under the Tuberculosis Order, 1925 since the Order came into force and the amount spent in compensation —Mr GUINNESS replied From Sept 1st 1925 to Dec 31st 1926 23 369 cows were slaughtered by Local Authorities under the Tuberculosis Order 1925, for which compensation amounting to £90,184 was paid

Chester-le-Street Guardians and Public Funds

Sir WILLIAM DAVISON asked the Minister of Health whether his attention had been called to the misappropriation of public funds by the board of guardians of Chester-le-Street Durham during the coal strike whether he had taken legal opinion as to whether the persons concerned were guilty of having entered into an illegal conspiracy and what action the Ministry were taking in the matter —Sir KINGSLEY WOOD replied Yes Sir my right hon friend does propose to draw the attention of the Director of Public Prosecutions to this matter

Treatment of Flour with Chemical Substances

Rear-Admiral BEAMISH asked the Minister of Health whether he proposed, by legislation or otherwise to carry into effect the recommendations or any of them, of the departmental committee on the treatment of flour with chemical substances.—Sir KINGSLEY WOOD replied The report of the departmental committee is at present under consideration and my right hon friend is not yet in a position to make any statement as to the action to be taken their recommendations

Pupils in Certified Special Schools

Mr ROBERT MORRISON asked the President of the Board of Education the number of pupils in certified special schools for the blind, deaf mentally defective physically defective, and epileptic children in each of the age groups 13–14, 14–15 15–16 and over 16 respectively on March 31st 1926 Lord E PERCY replied The following is the information asked for —

Type	13–14	14–15	15–16	16 and over
Blind	613	361	288	54
Deaf	496	480	416	71
Mentally defective	2629	2103	1465	241
Physically defective	2486	1360	770	100
Epileptic	96	96	76	13

Night Work in Bakeries

Mr WILLIAM THORNE asked the Home Secretary if his attention had been called to the statement made by the coroner at the inquest on a baker who died at Sunninghill, Berkshire in connection with the deceased having worked 14 to 15 hours for six nights per week if he was aware that a two-thirds majority was secured in favour of the abolition of night work in bakeries by the League of Nations Geneva Conference, and whether it was the intention of the Government to ratify the Geneva decision.—Captain HACKING Under Secretary to the Home Office replied My right hon friend has not seen the statement of the coroner, but since his attention was called to the case by the hon Member's question he has made some inquiries So far as I have been able to ascertain it appears to have been the case that the man was being employed for excessively long hours and at a time when he was in an advanced stage of tuberculosis My right hon. friend regrets that there is no action which he can take in the matter The long hours would not have been prevented by the ratification of the Night Baking Convention the effect of which is only to prevent employment during a certain period of the night, and my right hon. friend has already explained on previous occasions why the Government do not see their way to ratify the Convention which their representatives voted against at Geneva

TUESDAY MARCH 15TH

Manufacture of Poison Gas in Russia

Sir ALFRED KNOX asked the Secretary of State for War whether he was aware that several factories were being operated by the Soviet Government in Russia for the manufacture of poison gas and the number and location of such factories and the present and potential output —Sir L WORTHINGTON-EVANS replied His Majesty's Government has information that the study of gas warfare is being actively pursued in Soviet Russia numerous factories have been set up and are in course of erection, which are or will be capable of poison gas production on a very considerable scale It is not considered that any useful purpose will be served by detailing the number and location of such factories, or by indicating their present and potential output but there is no doubt that the Soviet military authorities are actively studying this type of warfare and making preparations on a large scale for its possible eventual use

Miners Nystagmus

Mr SHORT asked the Secretary for Mines what was the number of cases of miners' nystagmus during 1925 and 1926, respectively whether the incidence of this disease was still heavy and what action, if any he proposed to take —Colonel LANE FOX replied In 1925 the number of new cases in which compensation was paid was 3444 and the number continued from previous years was 7890 The figures for 1926 are not yet available. The Mining Association and the Miners' Federation have been invited to coöperate with the Home Office to give effect to the recommendation of the Nystagmus Committee, and continual efforts are being made to improve lighting in mines

Outbreak of Anthrax at the Zoological Gardens

Sir WILLIAM DAVISON asked the Minister of Agriculture whether, in view of the recent outbreak of anthrax at the Zoological Gardens in London he would consider the advisability of extending the present Contagious Diseases of Animals Order so as to include all animals in the United Kingdom wild as well as domesticated —Mr GUINNESS replied Yes, Sir, I am at present considering the advisability of including within the scope of the Anthrax Order of 1910 all animals susceptible to anthrax which are kept in public or private zoological collections and travelling menageries authorities to provide suitable training for mental defectives whilst under supervision as well as in institutions Although the Act authorises the combination of local authorities, it does not enable a local authority to provide additional beds which could be lent to other authorities Clause 7 (1) provides for such a procedure Clause 7 (2) enables the local mental deficiency authority and the local education authority (who have responsibility for certain classes of defectives of school age) to provide an institution jointly

HOUSE OF COMMONS

WEDNESDAY, MARCH 9TH

Duties on Imported Drugs

Mr FENBY asked the President of the Board of Trade why the exemption orders applied for since last August under Section 10 (5) of the Finance Act 1926, in respect of phenacetin, phenazone, oxalic acid, hydroquinone, and other products liable to duty under Part I of the Safeguarding of Industries Act, 1921, had not yet been issued, and if he was aware that the effect of the undue delay in issuing the exemption orders was that users were compelled to pay at least one-third more than would otherwise be the case for these materials, which had to be imported as they were not made here —Sir BURTON CHADWICK (Parliamentary Secretary to the Board of Trade) replied An order under Section 10 (5) of the Finance Act, 1926, exempting certain articles from duty, was made by the Treasury on Monday last

THURSDAY, MARCH 10TH

Surgical Opinion and Light Metal Limbs

Major HILLS asked the Minister of Pensions whether, seeing that surgical opinion was overwhelmingly in favour of light metal limbs, whether for amputations above or below the knee, it was the practice of the Ministry to issue such light metal limbs in all cases of amputation below the knee or only in special cases, and if the latter, on what principle was a distinction made —Major TRYON replied I am not aware of any authority for the assumption made by my hon and gallant friend in the first part of the question, but I may say that light metal limbs are issued both for above and below knee amputations in every case recommended by the surgeons In many cases, however, the wooden limb, which has now been so far improved that it is actually lighter than the metal limb, is regarded both by the pensioner and the surgeon as more suitable, especially in amputations below the knee

A Case of Sexual Aberration

Colonel WEDGWOOD asked the Home Secretary whether his attention had been called to a sentence of six months' imprisonment with hard labour passed by the North London police-court magistrate on a labourer, Wright, for cutting off a tress of a girl's hair, whether he was aware that this offence was a well-known sexual aberration, and would he recommend that the sentence be remitted —Sir W JOYNSON-HICKS replied The answer to the first two parts of this question is in the affirmative The answer to the third part is in the negative

Blind Persons in England and Wales

Mr SHORT asked the Minister of Health the total number of blind persons in England and Wales on Dec 31st, 1926 —Mr CHAMBERLAIN replied The last return of blind persons registered in England and Wales was made on March 31st, 1925, and showed a total of 42,140 A further return will be asked for on March 31st next

Education of Blind Children

Mr ROBERT MORRISON asked the President of the Board of Education to give the present estimated number of blind or partially blind children who might benefit by admission to special schools, how many of these children were at present in special schools, how many in public elementary schools, how many in residential institutions, and how many were not attending any school —Lord EUSTACE PERCY replied The following are the particulars asked for —

	Blind	*Partially Blind*
Total number of blind and partially blind children ascertained by local education authorities in 1925	2000	4692
Number attending special schools	1642	2258
Number attending public elementary schools	63*	2069
Number in other institutions	33	26
Number not attending any school	262*	339

* The fact that these children are not attending special schools is due in the main to the unwillingness of the parents to have their children sent to residential schools

Mr SHORT asked the President of the Board of Education what was the number of sightless children of elementary school age on Dec 31st, 1926 —Lord EUSTACE PERCY replied The number of totally blind children between the ages of 5 and 16 ascertained by the local authorities during the year ended Dec 31st, 1925, the last year for which complete returns are available, was 2000

Local Authorities and the Blind

Mr SHORT asked the Minister of Health to state what was the number of local authorities who had availed themselves of the provisions of The Blind Persons Act, 1920, and provided schemes for the welfare of the blind and the number of persons involved —Mr CHAMBERLAIN replied There are 145 local authorities in England and Wales under the Blind Persons Act, 1920, and all of them have made, and put into operation, schemes for promoting the welfare of the blind These schemes cover all the registered blind persons in the country

Welfare Schemes for the Blind

Mr SHORT asked the Minister of Health the total expenditure upon welfare schemes for the blind during 1926 —Mr CHAMBERLAIN replied Figures are not available for the calendar year 1926 In the financial year ended March 31st, 1926, Government grants in aid of the welfare of the blind amounted to £103,994 The expenditure of local authorities was approximately £136,000 The income from voluntary sources of the voluntary agencies for the blind which are assisted by Government grant was £120,403

Government and Lunacy Law Reform

Mr SEXTON asked the Minister of Health if any action was being taken to incorporate the report of the Royal Commission on Lunacy and Mental Disorder in an Act of Parliament —Mr CHAMBERLAIN replied Steps are being taken to examine the report with a view to incorporating in a Bill such of the recommendations as the Government are able to adopt It will not, however, be practicable to prepare such a measure in time for introduction in the present Session

Inspection of Dairies

Mr SITCH asked the Minister of Health the number of dairies in England and Wales and the number inspected in the 12 months ending Dec 31st, 1926, by the two milk inspectors —Mr CHAMBERLAIN replied Information is not available as to the number of dairy farms in England and Wales, but it is estimated to be over 200,000 The number of farms inspected in 1926 by the two milk inspectors of my department was 220, these being farms for which a licence to sell Certified or Grade A (Tuberculin Tested) milk was held or applied for The responsibility for the supervision of other farms rests with local authorities

Motor Drivers and Medical Unfitness

Mr DAY asked the Home Secretary the number of applicants for licences to drive either a taximeter cab or omnibus who had been refused the same by him during the 12 months ended to the last convenient date, and the reason why these licences had been refused —Sir W JOYNSON HICKS replied 142 applicants for licences were refused during the period March 1st, 1926, to Feb 26th, 1927 The grounds of refusal were medical unfitness 42, inquiry unsatisfactory, 100 This neglects one applicant who was refused a motor omnibus driver's licence at the time, but who has since been granted one

MONDAY, MARCH 14TH

Medical Services in the Navy

On the motion that the Speaker do leave the Chair on the House going into Committee on the Navy Estimates,

Mr BRIDGEMAN (First Lord of the Admiralty), said there was one small point which was rather an important one, although it was not a question of a great deal of money That was the Royal Naval Medical Service Recruitment for that Service had been unsatisfactory for some considerable time He need not go into the causes of it A Committee was set up to look into the conditions of the service, and to inquire into the causes of the difficulty of recruiting

Commander BELLAIRS Was that exclusive to the Navy?

Mr BRIDGEMAN said that it was for all the Services As a result certain improvements had been effected, and were notified in July last in Fleet Orders The principal improvements were that greater facilities had been given to the young doctors to specialise in various branches of their profession, which were not naturally easily available in sea service Improved allowances had been given to holders of specialist posts, and charge pay had been approved for medical officers in charge of hospital and sick quarters Also any candidate who held a house appointment at a recognised hospital was allowed to ante-date his seniority by one year, the object being to attract if they could the most efficient of the younger medical students They had also established an addition to the dental officers by increasing their establishment from 48 to 64

Sir B FALLE said that if a man fell ill in the Navy he was sent to the Fleet Surgeon who on his own responsibility alone decided whether the man was to be discharged from the

Manch, Resident House Physicians, PENDLEBURY, R, M B Ch B Manch, ILLINGWORTH, R, B M., B Ch Oxf, MITCHELL, D E J, M R C S, L R C P Lond, POYSER, R. H, M B, Ch B Manch ANDERSON, J K, M B, Ch B Manch, SISSONS, H, M R C S, L R C P Lond., ROFF, C D, M B, Ch B Manch, STARR, D, M B, Ch B Manch, MOLL, G S W, M.B, Ch B Manch, SIMMONS, H T, M B, Ch B Manch DAVIS, A A, M B Ch B Manch, WHITLEY, J T, M B, Ch B Manch, Resident House Surgeons, EDWARDS, Miss M E, M B, Ch B Manch, STUBBS Miss J B, M.B, Ch B Manch, HARBURN, Miss M M.B, Ch B Manch, Resident House Surgeons (Central Branch)

Queen Charlotte's Maternity Hospital CHISHOLM, W N, M B, Ch.B Edin, Senior Resident Medical Officer, SANKEY, J N, M.B, Ch.B Birm, F R C S Eng, Assistant Resident Medical Officer ALDRIDGE, J S, M.R.C S, L.R.C P Lond, District Resident Medical Officer

St Thomas's Hospital PAGE, C MAX, M S Lond, F R C S Eng, Surgeon, COOKE, A. M., M B B Ch Oxf, M R C P Lond. Resident Assistant Physician, PATRICK, C V, M B, B Ch. Camb, F R.C S Eng, Resident Assistant Surgeon TOMPSON, B E, M.B B Ch Oxf., Medical Registrar BOGGON, R. H, M B, B S Lond., F R C S Eng, Surgical Registrar, SIMS, T H M B B Ch Camb, Obstetric Registrar: BARRETT, J C, M B, B S Lond, Senior Resident Surgical Casualty Officer, BAUWENS, P, M.R.C S L.R.C P Lond Medical Officer in charge of Electro-Therapy Department

Certifying Surgeons under the Factory and Workshop Acts REYNOLDS, B R., L R.C P Lond, M R.C S (Fenny Stratford), RENDLE, A R., L R C P Lond., M.R C S (Godalming) UNWIN, F A, L M S S A (Downham Market), COOK, O, M.B, Ch.B Edin. (Walsall), MACRAE, J W, M.B, Ch B Aberd. (Banff)

Vacancies.

For further information refer to the advertisement columns

Bermondsey Borough, S.E—Asst Tuberculosis O £600

Birmingham Union, Dudley road Hospital—Two H S's £200 and £150 respectively

Brighton County Mental Hospital, Hayward's Heath—Second Asst M.O £350.

Brighton, New Sussex Hospital, Windlesham-road,—H S At rate of £50

Brighton Royal Sussex County Hospital—Hon. S, Hon Asst S Also Hon. Med. Clin. Assts

Bristol Cossham Memorial Hospital, Kingswood—Res M.O £150

Cambridge, Addenbrooke's Hospital—H S and H.P Each at rate of £130

Central London Ophthalmic Hospital, Judd-street, St Pancras W C—Senior and Junior H.S At rate of £100 and £50 respectively

Charing Cross Hospital W C—Asst Obstet P

Charing Cross Hospital, Institute of Pathology—Pathologist £500

Clinical Research Association, Ltd, Watergate House Adelphi, W C—Part-time Asst Director of the Labs £250.

Elizabeth Garrett Anderson Hospital, Euston-road—Phys in charge of Children's Dept

Evelina Hospital for Children, Southwark, S.E—H.S At rate of £120

Glasgow, Gartloch Mental Hospital Gartloch—Jun. Asst M.O At rate of £300

Hereford County and City Mental Hospital—Second Asst. M O £[illegible]

Hertford County Hospital—H.P At rate of £150.

Hospital for Consumption and Diseases of Chest, Brompton, S W—Asst. Surg. to Throat, Nose and Ear Dept

Hospital of St John and St Elizabeth, 40 Grove End-road, N W—Res H.S. At rate of £75

Hospital for Sick Children, Great Ormond-street W.C—H.S Also H.P. and Asst Cas. O Each at rate of £50

Huddersfield Storthes Hall Mental Hospital Kirkburton—Med. Supt £1[illegible]

Ilford Borough Maternity Home—Obstet. Consulting Surg

Jerusalem Ophthalmic Hospital—Sub Warden. Also Registrar

King's Lynn, West Norfolk Hospital—Jun. H.S £1[illegible].

[illegible]—Cancer Research Fellowship. £[illegible]

Liverpool Royal Southern Hospital—Hon. S, Hon. Dermatologist, and Hon. Ophth S

Royal Halifax Infirmary, Halifax—Third H S (Male) £100 per annum

Ryde, Royal Isle of Wight County Hospital—Vacancy on Hon Med Staff

St Bartholomew's Medical College, E C.—Sen Demonstratorship of Pathology

Samaritan Free Hospital for Women, Marylebone-road, N W—Hon Surg to Out-patients

Seamen's Hospital Society, Dreadnought Hospital, Greenwich—H P and H S At rate of £110.

Seamen's Hospital Society, Albert Dock Hospital, Connaught road, E—H S At rate of £110

Sheffield Royal Hospital—Sen Cas O £150

Sheffield Royal Infirmary—Asst S to Ophthalmic Dept

Southampton County Borough Isolation Hospital—Res M O £360

South London Hospital for Women, South Side Clapham Common, S W—H P and H S Each at rate of £50

Sudan Government Medical Dept—M O £E 720

University of London, South Kensington, S W—Chair of Anatomy £1000

Walthamstow, Wanstead and Leyton Children's and General Hospital, Orford-road, Walthamstow, E—Hon Ophth S

West-End Hospital for Nervous Diseases, Regent's Park, N W—Anæsthetist

Worcestershire County Council—Asst Co M.O £600

York City—Asst M O H &c £600

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons Rocester (Staffs), Selkirk (Selkirkshire), and Bakewell (Derbyshire)

The Secretary of State for the Home Department gives notice that, in consequence of the resignation as from March 31st, of Dr E J Lloyd, Medical Referee under the Workmen's Compensation Act, 1925, for the Districts of the Bangor, Conway, Llandudno and Colwyn Bay, and Llanrwst County Courts (Circuit No 29), the appointment held by him will become vacant Applications for the post should be addressed to the Private Secretary, Home Office, and should reach him not later than April 6th, 1927

Births, Marriages, and Deaths.

BIRTHS.

CRONK.—On March 13th, at Osborne House, Queen's road, Ashton-on-Mersey, Manchester, the wife of H L Cronk, M.A., M D Camb, of a son.

MARRIAGES.

COLLIS—FODEN—On March 5th, at the Church of St Mary-le-Bow, Cheapside G E. Cecil Collis, M.B, B S Lond M.R.C S, L.R C P, to Mary Stuart A. Foden, M.B B S Lond., elder daughter of Mr and Mrs E. A. Foden, of Teddesley, Penkridge, Stafford.

DEATHS

CORKEY—On March 7th, very suddenly, Isaac Whitla Corkey, M.C, F R.C S, of Ladbroke-road, Epsom.

CUTHBERT—On March 11th, at the Royal United Hospital, Bath, Harry Edward Cuthbert, B M., B Ch., aged 26 years

GARRETT—On March 7th, at Cheltenham, Percy Charles Garrett, M.R.C S, L.R.C.P, in his 47th year

GORST—On March 5th, at Llanbedr Hall, Ruthin, Raymond Barclay Gorst, M.B, Ch.B, D M.R E., late of Littleborough, Lancs

HAYNES—On March 12th, at Evesham Hospital, after an operation, Horace Eyre Haynes M.R.C S, L S.A., J P., of Greyfriars Evesham, and Littleton Hall, Brentwood, aged 80 years R.I P

MUSPRATT—On March 10th, at Madeira-road, Bournemouth, of heart failure Charles Drummond Muspratt, M.D, F R.C.S, aged 68 years

SOUTHAM.—On March 9th, at Kinnaird-road, Withington, Manchester, Frederick Armitage Southam, F R.C S, Consulting Surgeon, Manchester Royal Infirmary, Emeritus Professor of Surgery, Manchester University

S[illegible]—On March 7th, Dr John Moore S[illegible] of Long Clawson, Melton Mowbray, aged 100.

N.B—A fee of 7s 6d is charged for the insertion of Notices of

Tuberculosis Research

Mr DAY asked the Minister of Health the total amount of the sums expended during the year ending Dec 31st last in respect of tuberculosis research work —Sir G HENNESSY (Vice Chamberlain of the Household) replied The sum of £4846 was expended by the Medical Research Council during the 12 months to Dec 31st, 1926, on research work upon specific problems of tuberculosis This excludes the cost of research into fundamental problems of which the bearing upon tuberculosis cannot be calculated, and also the cost, not separately estimated, of work in this subject by members of the Council's own staff in the National Institute for Medical Research

Young Persons Killed in Coal-mines

Mr CAPE asked the Secretary for Mines what was the number of young persons under the age of 18 killed in the coal-mines of this country during the months of December, 1926, and January and February, 1927 —Colonel LANE FOX replied 20 persons under 18 years of age were killed at coal-mines in Great Britain during the months of December, 1926, and January and February, 1927

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES

ROYAL SOCIETY, Burlington House, Piccadilly, W
THURSDAY, March 24th —4 30 P M *The following Papers will be read* Sybil Cooper, D E Denny-Brown, and C S Sherrington Interaction between Ipsilateral Spinal Reflexes acting on the Flexor Muscles of the Hindlimb F W R Brambell The Development and Morphology of the Gonads of the Mouse Part I, The Morphogenesis of the Indifferent Gonad and of the Ovary (communicated by Prof J P Hill) R. J Ludford The Golgi Apparatus in the Cells of Tissue Cultures (communicated by Dr J A Murray) C E Walker and Margaret Allen The Nature of Golgi Bodies and other Cytoplasmic Structures appearing in Fixed Material (communicated by Sir John Farmer) W S Patton, and E Hindle The Development of Chinese *Leishmania* in *Phlebotomus major var Chinensis* and *P sergenti var* (communicated by Dr H H Dale) G S Sansom The Giant Cells in the Placenta of the Rabbit (communicated by Prof J P Hill)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W
TUESDAY, March 22nd —5 P M, MEDICINE, DISEASE IN CHILDREN AND DERMATOLOGY Special joint discussion The Uses and Limitations of Ultra-violet Light Therapy Speakers will include Dr S Ernest Dore, Dr J H Sequeira, and Dr Albert Eidinow
WEDNESDAY —4 30 P M, PSYCHIATRY Pathological Meeting in the laboratory at the Maudsley Hospital Denmark Hill, S E 5, by the courtesy of Dr Golla Tea will be provided before the meeting
THURSDAY —8 30 P M, UROLOGY Clinical Pathological Meeting
FRIDAY —5 P M, DISEASE IN CHILDREN (Cases at 4 30 P M) *Cases* Dr Bernard Myers (1) Essential thrombocytopenic Purpura Hæmorrhagica, 15 months After Splenectomy (2) Specimen Showing Atresia of the Duodenum Mr D C L Fitzwilliams (3) Case of Deformity of Foot as Result of Osteomyelitis (4) Case of Dislocation of Cervical Vertebra as Result of a Fall Dr Kenneth Stone (5) Case of Splenomegaly for Diagnosis 8 P M, EPIDEMIOLOGY AND STATE MEDICINE *Paper*, Dr W St C McClure The Incidence of Pneumonia

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos street, Cavendish square, W
FRIDAY, March 25th —8 30 P M, Dr J H Sequeira The Place of Venereal Disease in the Medical Curriculum A Discussion will follow

ILLUMINATING ENGINEERING SOCIETY
TUESDAY, March 22nd —6 30 P M (at the Lighting Service Bureau, 15, Savoy-street, Strand, W C 2), discussion (illustrated by lantern slides) on Various Problems in Illumination and Practical Solutions

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, 1 Wimpole street, London, W
MONDAY, March 21st, to SATURDAY, March 26th —FELLOWSHIP OF MEDICINE Special lecture at the Medical Society, 11, Chandos-street, Cavendish square, W, at 5 P M on Thurs Dr R Travers Smith Emergencies in Neurological Practice Open to all members of the medical profession without fee —CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd street, W C Wed, Mr Levy Thurs, Miss Mann Fri, Mr Williamson-Noble Special demonstrations in ophthalmology at 4 P M Free to members of the medical profession CHARING CROSS HOSPITAL, King William-street, W C Tues, 2 P M., special demonstration in clinical surgery by Mr Lake *No fee to members of the medical profession.* —CHELSEA HOSPITAL FOR WOMEN, Arthur street S W Special course in gynæcology —LONDON TEMPERANCE HOSPITAL, Hampstead road, N W 4 30 to 6 P M., General Practitioners course *Medicine, Surgery and the Specialties* —ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland street, W Comprehensive course *Morning and afternoon sessions*
Further information from the Secretary

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S W
TUESDAY, March 22nd —5 P.M, Sir Charlton Briscoe The Muscular Mechanism of Respiration and its Disorder (First Lumleian Lecture)
THURSDAY —5 P M, Sir Charlton Briscoe (Second Lumleian Lecture)

NORTH-EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N
MONDAY, March 21st —10 A.M., Surgical Clinic 2 P.M., Medical Cases in the Wards 2 30 P M to 5 P.M., Medical, Surgical, and Gynæcological Clinics Operations
TUESDAY —2 30 P M *to 5* P M, *Medical,* Surgical, Throat, Nose, and Ear Clinics Operations
WEDNESDAY —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations
THURSDAY —11 30 A M., Dental Clinic 2 30 P M. to 5 P.M, Medical, Surgical, and Ear, Nose, and Throat Clinics Operations
FRIDAY —10 30 A M, Throat, Nose, and Ear Clinics 2 30 P M to 5 P M, Surgical, Medical, and Children's Diseases Clinics Operations
On TUESDAY, March 22nd, and THURSDAY, March 24th, at 2 30 P M, there will be special demonstrations of Medical and Surgical *cases* by Dr F G Crookshank and Mr H W Carson respectively
Also on FRIDAY, March 25th, at 4 30 P M, Dr L R Yealland will demonstrate on Selected Cases of Nerve Diseases.

ROYAL NORTHERN HOSPITAL POST GRADUATE COURSE
TUESDAY, March 22nd —3 15 P M., Mr G G Penman Injuries to the Eye

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C
THURSDAY, March 24th —4 P M, Mr A T Pitts Dental Caries in Young Children.

LONDON SCHOOL OF DERMATOLOGY, St *John's Hospital*, 49, Leicester square, W C
TUESDAY, March 22nd —5 P M, Dr H G Adamson Benign Growths of the Skin
THURSDAY —5 P M, Dr H MacCormac Malignant Growths of the Skin

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY
WEDNESDAY, March 23rd —5 30 P M., Mr H Stobie The Lower Third Molar

MANCHESTER ROYAL INFIRMARY POST GRADUATE COURSE
TUESDAY, March 22nd —4 15 P M, Mr W H Hey *Surgical* Aspect of Diseases of the Spleen
FRIDAY —4 15 P M, Mr F H Westmacott and Mr D L Sewell Demonstration of Aural Cases

ANCOATS HOSPITAL, POST-GRADUATE LECTURES, Mill-street, Manchester
THURSDAY, March 24th —4 15 P M, Dr Arnold Renshaw Recent Advances in Chemotherapy

ST MARY'S HOSPITALS, MANCHESTER POST GRADUATE LECTURE
FRIDAY, March 25th — 4 30 P.M (at the Whitworth street West Branch), Dr J W Bride Obstetric Hæmorrhage

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.
FRIDAY, March 25th —3 30 P M (at the Royal Hospital), Dr Grout Radiology in Diagnosis

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)
MONDAY, March 21st —6 P M (at the Medical Society of London 11, Chandos street, W), Prof H R Kenwood Hygiene

Appointments.

PEARSON, WILFRED J, D M Oxf, M R C P Lond., has been appointed *Honorary Physician to* the Children's Department, University College Hospital

Manchester Royal Infirmary SUTHERLAND, D M, M D Manch, F R C S Eng, and BAILEY, K V, M C, M D, Ch B Manch, Assistant Surgical Officers, ELLIS R, M B, Ch B Camb, Cardiological Registrar, SUSMAN, W, M D Ontar, and POLSON C, M B, Pathological Registrars DRINKWATER, S W, M B, *Ch B* Manch, and MILNER, S M, B Ch Camb, Surgical Registrars, WHITROW, Miss F, M B, Ch B Manch, and MACLEAN, Miss G, M B, Ch B Manch, Clinical Assistants, SMITH, G S, M B Ch B Manch, Assistant to the *Director of* the Clinical Laboratory, SHAFFER, RAPHAEL M B, *Ch B* Manch Assistant Medical Officer in the Massage and Electrical *Department* BROCKBANK, W, M A, B Ch Camb, Resident Medical Officer MORRIS, L, M.B, *Ch B* Manch, Assistant Resident Surgical Officer, LANGFORD, G F, M B, Ch B Manch, Resident Clinical Pathologist, SANDIFORD, B P, M B, Ch B Manch, JONES, G W, M B, *Ch B Manch*, RAY, W H, B M, B Ch. Oxf, SHEEHAN, M, M B, Ch B

I was inclined to doubt the connexion between dampness and rheumatic infection. However, these altered my views, and although I should like to see how close the relationship is found by a wide and long inquiry to be, it seems to me unwise to postpone any action in the matter for the sake of securing ampler evidence. The Cardiac Subcommittee of the British Medical Association is taking counsel of the Royal Institute of British Architects, and this ought to lead to some effective action. Sir George Oatley, F.R.I.B.A., has discussed this matter with me and has given me the benefit of his long experience, which goes to show that both in preparation of the site and in building of the house itself there are possibilities of error which vary inversely as the conscientiousness of the builder. There never was a time when it was more necessary to lay stress on housing conditions. We are building not merely new houses but new suburbs on a scale beyond anything within living memory. Let us hope that there will be a marked fall in the incidence of rheumatic heart disease among the children born and brought up in these houses, but in the meantime I think it is our duty to insist on the desirability of dryness in the choice of sites and the development of building schemes.

Other Ætiological Factors

There are three or four other ætiological factors to which I must refer, though their share in any preventive plan is by no means obvious, partly because we are not yet sure how far they really do help to cause this disease, partly because it is not easy to see how their incidence can be reduced. Yet I believe a knowledge of their existence and influence may modify helpfully, if indirectly, any plans that may be devised for the prevention of the rheumatic infection.

The first of these may be dismissed in a word or two, as it is becoming generally understood that the carditis that occasionally complicates scarlet fever is really rheumatic. It seems that scarlet fever, perhaps in its attack on the tonsils, makes a breach in the bodily defences through which the rheumatic infection can enter. Any or all of the cardinal manifestations of that infection may follow, and among these we must place first in importance cardiac inflammation. In its clinical course as well as in its microscopical characteristics this is identical with rheumatic carditis, and it calls for the same prolonged and minute care.

Poverty and Life in Towns

Another much more debatable factor is the social one. Its existence is proved beyond doubt, but what we do not yet know is exactly what social stratum it is that suffers. We do know this, that cardiac rheumatism is a relatively rare disease among the wealthier classes. I may also add in parenthesis, that when it does attack a well-to-do child it is, on the whole, less to be feared than in a child less fortunately surrounded. Whether this is wholly due to the more prolonged and skilled care given to such a child, or to better food, or to a more generous reserve of energy, it is not easy to be sure. But the results that can be achieved in such children are encouraging enough to justify a hope that when hospital accommodation allows us to provide conditions of treatment for the poorer children as adequate as the wealthier ones already enjoy, we shall see a sensible reduction in the crippling effects of this infection.

But if poverty, using that term in its widest sense, is a factor in the causation of this disease, what element of poverty is it that we must blame and correct? Is it the whole complex of influences that constitute the meaning of poverty, or is it some one particular component of that complex? We may ask the same question about another influence, that of urbanisation. Here, however, we are on even less secure ground, for we are not yet sure that the city child is more liable to rheumatic infection than the rural one. This is one of the points that I hope we may be able to test by the research of which I have already spoken. In the area under consideration we have one city of 400 000 and three or four other towns or cities of 30,000 or more set in the midst of a community that is otherwise rural. If there is anything in the surmise that urbanisation tends to increase rheumatic infection, it ought to come out in this inquiry.

But supposing we do prove conclusively that this infection falls more heavily on the industrial suburbs of our great towns, what good is it going to do? I think much benefit may be derived if this knowledge is backed by increasing evidence of the importance of dampness in houses. Already there is enough in support of this triad—dampness, poverty, and urbanisation—to justify us in believing that as the public becomes aware of its existence and converts its knowledge into action we shall see a reduction in the incidence of rheumatic infection.

Diagnosis, Treatment, and Prevention

This brings me to a mention of the last of the ætiological influences of which I shall speak—namely, heredity. It is a curious paradox that while there is more and more talk of heredity as an influence in the causation of disease, we are doing all that we can to destroy the one weapon by which we can hope to have much direct influence on the familial factor in disease. In the past 20 years we have been busy providing doctors for the school child, doctors for the tuberculous and the syphilitics, doctors for the factories and the insurance societies; but no one thinks of seeing to it that every family in the land shall have a doctor. Is it because there are ceasing to be any families? If so, there is little that we can do, and, for that matter, little need to do it; but if family life is to continue and to re-establish itself in this complex experiment that we call civilisation, one thing that must be looked to is the provision of medical services for the family as a unit. Only in this way can we hope either for reliable information, or for effective action, in dealing with the familial factor in disease.

Last of all, let me plead for the retention of the hospital physician in any plan of campaign that we may devise. We ought already to have learnt from the struggle against tuberculosis that a wide clinical experience is needed if we are to discriminate between that which is tuberculosis and that which is not. I am sure this is going to prove equally true of the rheumatic infection. My own experience is that more mistakes are made in the direction of diagnosing rheumatic infection when it is not there than in the direction of overlooking that which is there. It is very difficult to recognise the imitations and nothing except long experience will ensure its being done. That experience those of us who are doing out-patient work in the general and children's hospitals have acquired; any plan that fails to mobilise that experience will be throwing away one of our greatest assets. Moreover, it is in these hospitals that our students are most conveniently trained. The unbalanced enthusiasms that have sowed clinics of all kinds here, there, and everywhere in our great cities, are making it increasingly difficult to give medical students an all-round education. If this insane tendency also gets hold of the campaign against rheumatic heart disease and diffuses its energies into special cardiac or rheumatic clinics, divorced from the places in which students are taught, we shall quite certainly fail to suppress the disease in this generation or provide for the struggle against it in the next. We are in for a long war and we must make our plans accordingly.

Let me here summarise what has been said on the steps to be adopted for the prevention of the rheumatic infection in childhood. In the first place, every care must be taken to ensure, as far as may be, prevention of damp in houses. Not only must each house be protected by the best means available against damp from below, but also no site suspected of dampness should be used. Secondly, further research must be made into the part played by social and economic factors in the causation of the disease. Third, the influence of tonsillitis and scarlet fever in predisposing to rheumatic infection must be remembered and dealt with on its own merits in each case. Fourth, more knowledge of the bacteriological aspects of the problem is much to be desired. Finally, it is devoutly to be hoped that all branches of the medical profession may be brought together in providing for early diagnosis and adequate treatment of the disease.

A RECTIFIER FOR ULTRA-VIOLET THERAPY

THE Medical Supply Association have produced a rectifier for use in ultra-violet therapy, which makes it possible to run a mercury lamp or metallic tungsten arc from an alternating voltage supply. The instrument consists essentially of an auto-transformer, in the secondary circuit of which an electrolytic rectifier of the usual type and an iron-cored choke are connected in series with the arc and its starting-up resistance. The innovation (for which a patent has been applied for) is in the choke coil which is designed to maintain steady conditions. The transformer is fitted with tappings which are used first to permit of a step-up or step-down effect according to the voltage of the mains, and secondly to allow of the arc being struck at a low voltage and then, as soon as running conditions are obtained, the higher operating voltage is applied to the lamp circuit by a change-over switch which makes contact to another tapping. The current which can be drawn from the instrument, depends on the size of the chemical rectifier, and in the case of the first models made the maximum value is about 5 amperes, a current quite adequate for the two types of lamp mentioned above. The apparatus should prove of considerable value in cases where alternating current only is available, as it permits of the use of ordinary direct current burners, whilst the inclusion of an auto-transformer in the design ensures that a high percentage of the power drawn from the mains is expended in the lamp itself. Both mercury and tungsten arcs are found to run quite steadily and normally when operated by the rectifier.

Notes, Comments, and Abstracts.

RHEUMATIC INFECTION OF CHILDHOOD.*

By Carey F Coombs, M D, F R C P Lond,
PHYSICIAN WITH CHARGE OF OUT PATIENTS, BRISTOL GENERAL HOSPITAL

I —*Concluded from p 580*

The Mechanism of Infection

I come next to a consideration of the bacteriology of the disease As Dr Poynton and I have recently published a full review [1] of this matter, you will allow me, perhaps, to state baldly and without argument a belief in the streptococcic hypothesis of the disease To my mind the view, which we owe to the long and patient researches of Poynton and Paine, that the exciting cause of these lesions is a streptococcus probably derived from and certainly very similar to those normally present in the human alimentary tract, is valid and has no rival Even those who cannot bring themselves to accept this hypothesis put forward no alternative

The most important deduction from the streptococcal theory, so far as prevention is concerned, is the futility of expecting to destroy this disease by any attempt to eradicate its infective agent This is probably a constant inhabitant of the healthy human body, or at all events a near relation of such inhabitants, and any effort to free ourselves from its existence would be about as profitable as a campaign for the extermination of the common dandelion It is not to measures of this kind, but rather to a general overhaul of the conditions under which the virus enters and injures the body, that preventive medicine must devote its energies We have, in fact, to face in this disease one in which the bacterium itself is of relatively little importance, and can only do harm when a certain group of conditions coincides to make the resistance of the individual inadequate

Let us look first at those properties of the body itself which influence its capacity to resist the rheumatic infection First, we have to scrutinise what are called the portals of entry The body is protected from the outer world not only by its skin, but also by the epithelial membranes that line the alimentary, respiratory and genito-urinary tracts These infoldings of the body's surface carry to its inmost citadel lines of lessened resistance like subterranean passages honeycombing the foundations of a fortress, and, like such secret passages, coming at points into the closest contact with the open thoroughfares of the invaded city

One of these points of contact is to be found in the tonsil a mass of lymphoid cells, one of whose chief functions appear to be to entomb and destroy bacteria On the deep side these cells are in free and direct contact with the circulating fluids of the body On their surface they are brought into an equally direct relation, through the crypts which pierce their substance, with the bacteria that live in the mouth They serve as a go-between for these bacteria and the blood of the living organism of which they are a part Perhaps it is one of their functions to make these two, the bacteria and the blood fluids, acquainted with each other, and to teach them a kind of mutual forbearance But, unfortunately, this ideal is not always attained Often the bacteria take advantage of the tonsil, so to speak, and push their way in so boldly that in spite of a stout resistance on the part of the tonsillar tissues, they enter freely into the blood fluids by which these tissues are bathed Then ensues the train of events recognised as manifestations of the rheumatic infection

Estimates of the frequency with which that infection is ushered in by a recognisable tonsillitis vary widely Probably the proportion of one-third, to which both Poynton and Miller approximate very closely, represents the general experience At all events, we may assume that in not more than half the cases the onset of rheumatic infection is declared by an act of open hostilities in the region of the tonsils And what happens in the other half ? Do the organisms sneak through the tonsils without exciting any local resistance ? Or do they enter elsewhere ? The small intestine contains very many lymphoid masses similar to the tonsils, yet—apart from an occasional and rather doubtful relation between appendicitis and rheumatism—it is difficult to trace any evidence of strife between body and bacteria at these intestinal outposts C W Vining has suggested that a relation exists between faulty dieting in childhood and the rheumatic infection, and Miller has initiated an inquiry into the bacterial content of the alimentary excreta of the rheumatic child It is generally agreed, I believe, that dental disease does not predispose the growing child to rheumatic infection At present, however, it cannot be said that we know anything for certain about any portal of entry other than that furnished by the tonsil We are not sure whether the infection always goes in by the tonsil or whether it sometimes uses an alternative route

Tonsillectomy

This uncertainty is reflected in the division of opinion that is found in the medical journals about the advisability of removing the tonsils of the rheumatic child Those who favour this plan do so because they think that to remove the tonsil is to remove the organisms that are on their way into the body to continue the evil work already begun by their predecessors Against this it is argued that removal of the tonsil does not remove from the mouth the bacteria that are potential causes of rheumatic infection, while on the other hand, it may mean removal of tissue which has an actual defensive value and thus a lowering of the resistance to the infection Also, it is possible that there are other avenues than the tonsil by which these organisms enter Unfortunately, the appeal to clinical results is answered by conflicting voices Some say that tonsillectomy is followed by freedom from evidences of active infection, others, that on the whole there is no difference between the course of the disease in children whose tonsils have been removed, and its behaviour in those whose tonsils have been left Miller's series, though limited, yielded a suggestive result, in that he found that rheumatic infection in the child whose tonsils had been removed was more often liable to manifest itself in an uncomplicated chorea than in the children whose tonsils had not been removed

Now, chorea is the most easily excited of all the rheumatic phenomena It takes a smaller dose of infection to upset the brain than it does to inflame the heart or joints, or to call into being a subcutaneous node Chorea is more often met with as a solitary manifestation of rheumatic infection than any of the others Possibly, therefore, extended experience may prove that removal of the tonsils does actually tend to reduce the severity of the infective process At the present time the sound rule appears to be to judge each case on its merits, and to have the tonsils removed if it appears from the history, or the condition of the throat on examination, or both, that these have served or are likely to serve as a breach in the defences through which the enemy may enter

Methods of Defence

Next let us consider what defensive mechanisms are at the disposal of the infected body, and by what means they may be reinforced I do not propose to enter upon a discussion of the machinery of immunity except to remind you that most infections excite against themselves not merely the general reactions by which living tissues oppose inimical particles, but also certain specific reactions which issue in the formation by the body of biochemical antidotes exactly suited to neutralise the particular poison of the moment It is this principle that is the basis of all treatment by vaccines and sera, and it is natural that we should look to such methods for help in the fight against rheumatic infection Up till now, moreover, we have had little encouragement from this quarter and, on the whole, it is not likely that we shall get much So far as there has been investigation of the immune bodies formed in reply to streptococcal infection of the heart, it has shown a remarkable variability from one individual to another This does not seem to warrant any great hope that it may be possible to add to the bodily economy from without, some standard protein antidote by which its recipient may be better defended against the streptococci of rheumatic infection It is rather from a consideration of those conditions without the body which predispose it to this infection that we shall derive the basis for a policy of prevention

Damp

First among these conditions I am going to put dampness There is a time-honoured tradition that wet feet cause rheumatic fever In its favour many isolated experiences can be quoted, but it is as impossible to prove from these a causal connexion between the two as it would be to prove that tuberculous meningitis is provoked by blows on the head, or that Mephibosheth was paralysed in both his feet because his nurse dropped him And it is difficult to counter in any effective way the fact that the Army in Flanders, during the recent war, was remarkably free from the usual evidences of rheumatic infection

Among the small group of cases analysed by Askins and Morrison, there was an appreciable number in which the parents ascribed the onset of the disease to some accidental exposure of the child to wet But more numerous and, in the light of the experience of others more significant, were the cases in which the rheumatic infection attacked a child living in a house proved by careful inspection to be damp or, at all events, built on soil within a short distance of one of Bristol's waterways Until I saw these reports

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[1] Brit Med Jour, July 3rd, 1926

I was inclined to doubt the connexion between dampness and rheumatic infection. However these altered my views, and although I should like to see how close the relationship is found by a wide and long inquiry to be, it seems to me unwise to postpone any action in the matter for the sake of securing ampler evidence. The Cardiac Subcommittee of the British Medical Association is taking counsel of the Royal Institute of British Architects, and this ought to lead to some effective action. Sir George Oatley, F.R.I.B.A., has discussed this matter with me and has given me the benefit of his long experience, which goes to show that both in preparation of the site and in building of the house itself there are possibilities of error which vary inversely as the conscientiousness of the builder. There never was a time when it was more necessary to lay stress on housing conditions. We are building, not merely new houses, but new suburbs on a scale beyond anything within living memory. Let us hope that there will be a marked fall in the incidence of rheumatic heart disease among the children born and brought up in these houses; but in the meantime, I think it is our duty to insist on the desirability of dryness in the choice of sites and the development of building schemes.

Other Ætiological Factors

There are three or four other ætiological factors to which I must refer, though their share in any preventive plan is by no means obvious; partly because we are not yet sure how far they really do help to cause this disease, partly because it is not easy to see how their incidence can be reduced. Yet I believe a knowledge of their existence and influence may modify helpfully, if indirectly, any plans that may be devised for the prevention of the rheumatic infection.

The first of these may be dismissed in a word or two, as *it is* becoming generally understood that the carditis that occasionally complicates scarlet fever is really rheumatic. It seems that scarlet fever, perhaps in its attack on the tonsils, makes a breach in the bodily defences through which the rheumatic infection can enter. Any or all of the cardinal manifestations of that infection may follow, and among these we must place first in importance cardiac inflammation. In its clinical course as well as in its microscopical characteristics this is identical with rheumatic carditis, and it calls for the same prolonged and minute care.

Poverty and Life in Towns

Another much more debatable factor is the social one. Its existence is proved beyond doubt, but what we do not yet know is exactly what social stratum it is that suffers. We do know this, that cardiac rheumatism is a relatively rare disease among the wealthier classes. I may also add in parenthesis, that when it does attack a well-to-do child it is, on the whole, less to be feared than in a child less fortunately surrounded. Whether this is wholly due to the more prolonged and skilled care given to such a child, or to better food, or to a more generous reserve of energy, it is not easy to be sure. But the results that can be achieved in such children are encouraging enough to justify a hope that when hospital accommodation allows us to provide conditions of treatment for the poorer children as adequate as the wealthier ones already enjoy, we shall see a sensible reduction in the crippling effects of this infection.

But if poverty, using that term in its widest sense, is a factor in the causation of this disease, what element of poverty is it that we must blame and correct? Is it the whole complex of influences that constitute the meaning of poverty, or is it some one particular component of that complex? We may ask the same question about another influence, that of urbanisation. Here, however, we are on even less secure ground, for we are not yet sure that the city child is more liable to rheumatic infection than the rural one. This is one of the points that I hope we may be able to test by the research of which I have already spoken. In the area under consideration we have one city of 400,000, and three or four other towns or cities of 50,000 or more, set in the midst of a community that is otherwise rural. If there is anything in the surmise that urbanisation tends to increase rheumatic infection, it ought to come out in this inquiry.

But supposing we do prove conclusively that this infection falls more heavily on the industrial suburbs of our great towns, what good is it going to do? I think much benefit may be derived if this knowledge is backed by increasing evidence of the importance of dampness in houses. Already there is enough in support of this triad—dampness, poverty, and urbanisation—to justify us in believing that as the public becomes aware of its existence and converts its knowledge into action, we shall see a reduction in the incidence of rheumatic infection.

Diagnosis, Treatment, and Prevention

This brings me to a mention of the last of the ætiological influences of which I shall speak—namely, heredity. It is a curious paradox that while there is more and more talk of heredity as an influence in the causation of disease, we are doing all that we can to destroy the one weapon by which we can hope to have much direct influence on the familial factor in disease. In the past 20 years we have been busy providing doctors for the school child, doctors for the tuberculous and the syphilitics, doctors for the factories and the insurance societies, but no one thinks of seeing to it that every family in the land shall have a doctor. Is it because there are ceasing to be any families? If so, there is little that we can do, and, for that matter, little need to do it; but if family life is to continue and to re-establish itself in this complex experiment that we call civilisation, one thing that must be looked to is the provision of medical services for the family as a unit. Only in this way can we hope either for reliable information, or for effective action, in dealing with the familial factor in disease.

Last of all, let me plead for the retention of the hospital physician in any plan of campaign that we may devise. We ought already to have learnt from the struggle against tuberculosis that a wide clinical experience is needed if we are to discriminate between that which is tuberculosis and that which is not. I am sure this is going to prove equally true of the rheumatic infection. My own experience is that more mistakes are made in the direction of diagnosing rheumatic infection when it is not there than in the direction of overlooking that which is there. It is very difficult to recognise the imitations and nothing except long experience will ensure its being done. That experience those of us who are doing out-patient work in the general and children's hospitals have acquired; any plan that fails to mobilise that experience will be throwing away one of our greatest assets. Moreover, it is in these hospitals that our students are most conveniently trained. The unbalanced enthusiasms that have sowed clinics of all kinds here, there, and everywhere in our great cities, are making it increasingly difficult to give medical students an all-round education. If this insane tendency also gets hold of the campaign against rheumatic heart disease and diffuses its energies into special cardiac or rheumatic clinics, divorced from the places in which students are taught, we shall quite certainly fail to suppress the disease in this generation or provide for the struggle against it in the next. We are in for a long war and we must make our plans accordingly.

Let me here summarise what has been said on the steps to be adopted for the prevention of the rheumatic infection in childhood. In the first place, every care must be taken to ensure, as far as may be, prevention of damp in houses. Not only must each house be protected by the best means available against damp from below, but also no site suspected of dampness should be used. Secondly, further research must be made into the part played by social and economic factors in the causation of the disease. Third, the influence of tonsillitis and scarlet fever in predisposing to rheumatic infection must be remembered and dealt with on its own merits in each case. Fourth, more knowledge of the bacteriological aspects of the problem is much to be desired. Finally, it is devoutly to be hoped that all branches of the medical profession may be brought together in providing for early diagnosis and adequate treatment of the disease.

A RECTIFIER FOR ULTRA-VIOLET THERAPY

THE Medical Supply Association have produced a rectifier for use in ultra-violet therapy, which makes it possible to run a mercury lamp or metallic tungsten arc from an alternating voltage supply. The instrument consists essentially of an auto-transformer, in the secondary circuit of which an electrolytic rectifier of the usual type and an iron-cored choke are connected in series with the arc and its starting-up resistance. The innovation (for which a patent has been applied for) is in the choke coil which is designed to maintain steady conditions. The transformer is fitted with tappings which are used first to permit of a step-up or step down effect, according to the voltage of the mains, and secondly to allow of the arc being struck at a low voltage and then, as soon as running conditions are obtained, the higher operating voltage is applied to the lamp circuit by a change over switch which makes contact to another tapping. The current, which can be drawn from the instrument, depends on the size of the chemical rectifier, and, in the case of the first models made, the maximum value is about 5 ampères, a current quite adequate for the two types of lamp mentioned above. The apparatus should prove of considerable value in cases where alternating current only is available, as it permits of the use of ordinary direct current burners, whilst the inclusion of an auto-transformer in the design ensures that a high percentage of the power drawn from the mains is expended in the lamp itself. Both mercury and tungsten arcs are found to run quite steadily and normally when operated by the rectifier.

NEW PREPARATIONS

Ephedrine —We have received from British Drug Houses Ltd , 16-30, Graham-street, City-road, E C , samples of the tablets for oral administration and the ampoules for hypodermic use of ephedrine hydrochloride, a drug which has been found really valuable in the treatment of asthma, and prophylactically for low blood pressure in *pneumonia* The firm have been making this alkaloid in their laboratories for some months past and now are manufacturing it upon a commercial scale from the Chinese plant Ma Huang (Ephedra vulgaris) imported by them

Metaphen (Abbott) is a powerful mercurial germicide for which it is claimed that it has 500 times the strength of phenol , the chemical name is di-acetoxymercuri-4-nitro-2-cresol It is a new organic mercury compound, and experience has shown that supplied in the form of a 1 500 (or 0 2 per cent aqueous solution) it may be kept for a long time in tightly stoppered bottles without any loss of germicidal potency and unaffected by the light or temperature of an ordinary room It is odourless, almost tasteless, does not stain either the skin or garments, and, further, when used as a disinfectant, does not tarnish instruments even when they are immersed in a 1 1000 solution of the compound for a week As a skin disinfectant in dilutions of 1 5000 sterilisation can be obtained The sample bottle submitted to us was an alkalinised 1 500 solution so that the usual 1 5000 is easily made by the addition of 1 part of the preparation to 9 parts of water The bacteria employed in testing the preparation were the *Staphylococcus aureus*, gonococus, and *Bacillus typhosus*, and directions for use of weak solutions for urethral injections are sent with the preparation Other main indications for therapeutic employment are skin affections, pyogenic or parasitic, rhinitis and coryza Metaphen is supplied by E H Spicer and Co , Ltd , 72, Wigmore-street, W 1

Trixyl, as prepared by Trixyl Antiseptics Ltd , Otterbourne, near Winchester, is an antiseptic preparation designed for external and internal use and for inhalation It is stated to be a compound derived from such vegetable essences and essential oils as eucalyptol, guaiacol, menthol, thymol, and terpinol, and the inventors lay stress on its use as an inhalation in irritative conditions of the air passages An ingenious little inhaler is supplied for use with the drug, so made that the bulbous end can be used for nasal inhalations and the narrow end for buccal use

BRAILLE "WIRELESS" PROGRAMMES FOR THE BLIND AN APPEAL.

Captain Sir Beachcroft Towse, V C, K C V O, C B E, has recently broadcasted an appeal for funds for the production, by the National Institute for the Blind (Headquarters 224, Great Portland-street, London, W 1), of an adequate wireless programme in Braille embossed type—an excellent and much-needed innovation

This is an essential service for the blind, among whom are many wireless enthusiasts, these becoming participators in the life of the world At present, however, the blind are absolutely dependent on sighted friends for their knowledge of the daily programmes Much interest has been shown in the scheme by the British Broadcasting Corporation, and the *Radio Times* has already made arrangements for supplying the Institute with the necessary details of forthcoming programmes in advance of publication, and, of course, without copyright fee

As soon as £700 is raised, a weekly programme will be produced to be sold to the blind at the nominal figure of 6*s* 6*d* per annum, post free The capital sum is needed for the purchase of a new embossing machine, as the present plant at the Institute—the largest publishers for the blind in the world—is constantly at work producing Braille periodicals and books in their thousands The blind will produce their programmes themselves, the procedure being as follows As soon as the " copy " for the programme is ready, it will be handed to a sighted reader who will dictate it to a blind stereotyper, who will transliterate each word into Braille, when it is embossed on a metal plate When a plate is completed, a proof copy will be read for press correction by a blind proof-reader, when the plate will be inserted in the embossing machine, as many copies as are required being supplied on specially prepared paper The sheets are then gathered together, collated by the blind, and bound into programmes ready for delivery to all parts of the world

An appeal is now issued by Mr J De La Mare Rowley, General Editor, National Institute for the Blind, and is directed to listeners throughout the country with the hope that they will assist as generously as possible All donations should be addressed to the Secretary-General (Braille Wireless Programmes Fund), National Institute for the Blind, 224–8, Great Portland-street, London, W 1

THE FOOD VALUE OF COCOA PROTEINS

The value of cocoa and chocolate as sources of protein in the diet would appear from the work of H H Mitchell, J R Beadles, and M H Keith (*Jour Biol Chem* , 1926, 71,15-31) to be small According to these workers, cocoa, with an average crude protein content of 21 5 per cent , yields 8 2 per cent of digestive crude protein and only 3 per cent of net protein available for replenishing and adding to the body proteins Chocolate, which contains less protein than cocoa, must be even less valuable in this respect Those who use cocoa and chocolate as adjuncts to a diet which is normally sufficient or who find chocolate a useful stop-gap when stranded in districts where reasonable meals seem to be unobtainable—and there are still some such districts—will not be much disturbed at these findings. They are, however, of importance to those for whom cocoa, made with watered milk, bread, and margarine form the staple diet

PERSISTENT BOILS.

To the Editor of The Lancet

Sir,—Replying to W L C 's inquiry (March 12th, p 582) on the treatment of persistent boils, the best result will, in my opinion, be obtained by the use of " Stannoxyl," 3 to 4 tablets daily, combined with the hypodermic injection of 10 c cm sterilised milk once a week From two to three injections are required

I am, Sir, yours faithfully,
James Hasson, M.D

Cleveland square, W , March 11th, 1927

To the Editor of The Lancet

Sir,—I would suggest to W L C that he tries the following method which I have found successful in a good many similar cases Apply with a camel's hair brush to the whole area of skin affected and a wide area round it either tinc iodi or a 1-2000 or 1-3000 solution in rectified spirit biniodide of mercury every three or four days If the area is a large one it may be wise to treat it with biniodide in sections, having in view the possibility of absorption. The method is reasonable in view of the fact that boils result from infection of hair follicles by staphylococci

I am, Sir, yours faithfully,
Bruce C Kelly, M B , C M Edin , M R C S Eng

Buckland Newton, Dorchester, March 13th, 1927

THE SUPPLY OF BLOOD DONORS

To the Editor of The Lancet

Sir,—May I appeal through your columns for volunteers to join the Blood Transfusion Service which is organised by the British Red Cross Society with the assistance of the British Hospitals Association and the Rover Scouts, and is now under the management of a Committee representative of these three bodies ? During the past five years nearly 1400 volunteers, of whom a large majority were Rovers, have given their blood to hospitals, nursing homes, and urgent private cases The total number of volunteers on the list is about 350, but during 1926, 737 calls for help were made and answered, and these are increasing so rapidly —122 already this year—we shall soon be unable to meet the demands

The operation is nearly painless and quite harmless The donor is quite able to return to work after half an hour's rest without fear of after-effects The Service is entirely voluntary, but fares, time lost from work, and all other expenses are refunded by the Committee Most men between the ages of 18 and 50 and many women are competent to render the service, only eight volunteers having so far been rejected The privilege or saving a human life is given to but few, but here is not only an opportunity but a practical certainty at the cost of a few hours' time and slight personal inconvenience

May we also make a very strong appeal to employers to permit volunteers in their service to act in emergency cases during business hours ? The time lost is not great, the expense is made good, and the donor is not in the least incapacitated We ask this because there are less than 50 members at present available during the daytime, and most of these have already been used once this year, and we are told that it is not easy to get leave from employers

The Society will be pleased to send a speaker to explain the nature of the Service to organisations interested Individual inquirers may obtain particulars at any time from the Honorary Secretary, 210, Peckham Rye, S E 22 (Telephone (night and day) New Cross 1606)

We are, Sir, yours faithfully,
Arthur Stanley,
British Red Cross Society
Knutsford,
British Hospitals Association
C Lisle Watson,
Rover Scouts

19, Berkeley street W 1,
March 10th, 1927

Lumleian Lectures

ON THE

MUSCULAR MECHANISM OF RESPIRATION AND ITS DISORDERS.

The First Lumleian Lecture delivered before the Royal College of Physicians of London on March 22nd

BY SIR CHARLTON BRISCOE, BART.,
M.D., F.R.C.P.LOND.,
PHYSICIAN TO KING'S COLLEGE HOSPITAL AND TO
ST JOHN AND ST ELIZABETH HOSPITAL

LECTURE I.

INTRODUCTION

THE subject of these lectures is derived from certain observations made in the course of a research lasting more than 20 years. In 1903 when I was in Göttingen Prof. Aschoff suggested a research on the mechanism of the peritoneum in resisting infection. I well remember his answer when I objected that the work suggested was very difficult, he replied, "Yes, if it were not so it would have been done before." I should like to express my gratitude to him for stimulating the spirit of research work, which he then aroused. When this was completed I proceeded on a similar investigation in respect of the lungs in a private laboratory at King's College, the results of which were published in the *Journal of Pathology and Bacteriology* (1907).[1] This investigation showed the paramount importance of cells lining the alveoli the "staube-zellen or herzfehlerzellen" which are strongly phagocytic to inorganic and organic material. It also showed that the activity of these cells was greatly enhanced by the presence of serum. My work showed the importance of stasis allowing plasma or serum to escape from the blood-vessels into the alveoli and the importance of approximating the alveolar cells to the object to be destroyed. It was a natural step from this to investigate the mechanism by which expansion of the lungs was diminished, a process which should achieve both the objects desired.

For some three years or more I performed experiments to determine differences of action of the two halves of the diaphragm; these experiments were carried out by a modification of Head's[2] method of utilising the xiphisternal attachment of the diaphragm in the rabbit, divided into right and left halves. Many experiments were made by injections into the lung pleura, pericardium by irritation of the peritoneum or the abdominal viscera, by traction on mesentery in the endeavour to produce an alteration in the contraction of one diaphragmatic slip. These observations were, for the most part entirely negative positive results showing a reduction of 10–12 per cent of movement were obtained on the side to which heat or cold was applied, and a similar reduction when the animal was laid upon one side.

About this time, 1909 Pasteur[3] published several papers and read the Bradshaw lecture to this College on the subject of massive collapse of the lung. From the point of view of pulmonary mechanism this was a most important contribution. It provided an identification of one of the unknowns in an equation and it appeared to me that a considerable advance would accrue if it was possible to discover the factors upon which this collapse of a definite part of the lung depended. An accidental observation led to a routine examination of the muscles which act upon the thorax, both in health and disease and subsequently to an examination of respiratory movements of different parts of the chest and abdomen, which have been recorded on a kymograph.

I shall deal in these lectures with some of the results of this investigation the mechanism of respiratory movement and of pain and dyspnoea arising in respiratory muscles. The first step must treat of respiratory movements in general.

CONCERNING NORMAL RESPIRATION.

The generally accepted theory of the mechanism of respiration postulates a respiratory centre or centres lying in the lower part of the pons and medulla from which fibres pass to the phrenic nuclei lying in the middle region of the cervical spinal cord. From this spinal centre originate the phrenic nerves, whose principal function is to conduct impulses to the diaphragm causing it to contract. The thoracic respiratory muscles must also be activated by connexions with these centres. The depth of each respiration so produced is regulated through the vagus by means of impulses arising, either from the volume of the lung, according to the Hering-Breuer[4] reflex, so fully investigated by Henry Head,[2] or by impulses arising from the passage of air over the bronchial mucous membrane, as suggested by Lumsden.[5] These impulses acting on the higher respiratory centre control the respective phases. The higher centre is governed by the pressure of CO_2 in, and the reaction of, the blood. It is, however, generally recognised that either the higher or lower centre can be affected by other means. It is obvious that a certain amount of conscious control of respiratory movement either of the chest or of the diaphragm is present in most individuals. It is equally obvious that pain and certain subconscious processes, so frequently illustrated in novels have an influence upon the type of respiration.

In general, the body does not work its various organs to the full. I think that that is a deduction made from Sir John Rose Bradford's work on the kidney,[6] which showed that it was necessary to remove at least three-quarters of the kidney before polyuria developed. Keith[7] has stated that the respiratory mechanism under ordinary circumstances works only at 5 per cent or 10 per cent of its capacity.

It is therefore clear that in the general muscular mechanism of respiration a very considerable degree of selection is possible as to which muscles diaphragm or thoracic shall contract. They are not all wanted *all* the time, but *all* are wanted some time or other, and we should expect that apart from conscious control the body will have some means of calling on now one muscle, now another, to do extra work—or a different type of work—to accommodate the act to the variable circumstances of life. I shall show later that such a mechanism exists, and that it is of clinical import.

Though it is a commonplace of the text-books that respiration in man is either diaphragmatic or thoracic, yet none mention the features characteristic of the two types, or attach importance to the subject, and there is a general tendency among clinicians to consider inspiration and that forced and voluntary, alone, except in a few pathological conditions in which expiration is obviously obstructed.

RESPIRATION DIAPHRAGMATIC OR THORACIC

I know of no work which attempts to explain the interdependence or differentiation of these types of breathing abdominal and thoracic. My task is, therefore, rendered considerably easier in that I have not to refer to the very large body of literature which exists on the subject of respiratory movements, dating from the time of Hippocrates down to the present day.

In the Arris and Gale Lecture[8] (1919) I drew attention to the characteristic features of the two types of respiration—viz., the diaphragmatic in which respiration is carried out practically entirely by the diaphragm (demonstrated externally by protrusion of the abdomen) and the thoracic, which is characterised by expansion of the bony thorax. Although the majority of individuals represent a combination of these two mechanisms in varying proportions this distinction of type must form the basis of any study of the mechanism of respiration. Such a study will involve an investigation of the movements of different parts of the chest epigastrium &c., and of the muscles which produce such movements.

I propose in this lecture to try to elucidate the various factors which influence the general type of quiet respiration seen in different individuals (as determined by tracings of movements and action of muscles) I should like to emphasise the fact that this part of the investigation has been made on normal individuals at rest, and as far as possible under circumstances in which the attention has not been directed to the question of breathing

Method of Investigation —The first difficulty that has to be contended with is the elimination of the effects of those muscles which are concerned with maintaining the balance of the body, for when standing the body sways continuously, requiring action by the muscles of balance, some of which are attached to the thorax, and exert influences on respiratory movements * With this object, and to make the results as practical as possible, I have adopted a standard posture for investigations. The subject is placed on a couch, the back of which is inclined at an angle of 45 degrees, and a pillow is placed beneath the shoulders, the head being suitably supported This enables a comparison of results obtained on normal people with those obtained on the sick, for the posture described is a comfortable one for examination of bedridden patients In this posture the muscles of the back, which is in contact with the couch, cannot be examined. Similarly, tracings are confined to movements of the anterior and lateral aspects of the chest and abdomen

Natural Variability.

I can state at once that in my investigations by chest tracings I have never met with two individuals who breathe in precisely the same manner, nor is it possible on successive days to secure identical tracings of the same individual.* This is not due to faults of technique. It is practically impossible to adjust an individual in exactly the same position on two successive days, or to guarantee an identical condition of his abdominal contents. The second reason for constantly finding differences arises from the point mentioned above—namely, that conscious and subconscious processes exert an influence on the manner of respiration

Differentiation between the Two Forms of Breathing

With this outline and criticism of the general methods I can proceed to the main part of the work, the differentiation and relationship of thoracic and diaphragmatic breathing and the muscles acting in either form †

IMPORTANCE OF EXPIRATION.

The general mechanism of inspiration is much more complicated than that of expiration There is considerable physiological evidence for considering that expiration, the excretory act of the lung, is of more importance than inspiration, for carbon dioxide plays a more important rôle in the immediate regulation of respiration than does oxygen I shall, therefore, proceed to discuss expiration, and to consider inspiration as a means of preparing for the former act

The Quadruped.—If we examine the mechanism of expiration in the quadruped it is clearly largely a passive act The relationship of the abdominal viscera to the diaphragm is such that when the diaphragm, after contraction, relaxes, it must be carried into the position from which the next inspiration will follow, by the weight of the liver and other abdominal organs In addition the effect of the elastic contraction of the lungs must be considered, and this, I may remind you, is of extreme importance in all questions of respiration.

In an experimental animal breathing deeply under an anæsthetic the chest moves but little, and expiration depends on the elastic recoil of the lungs, which may be assisted by the weight of the abdominal viscera The abdominal muscles do not contract The effects of obstructing expiration are instructive If the animal be allowed to inspire freely, but is made to expire against resistance, and such resistance is gradually increased, it will be found that with each inspiration the diaphragm attains a lower level and thus fills the lungs with more air It is only (in the case of a cat) when 13 or more centimetres of water are the obstructing force that any sign of increased chest movement and contraction of the abdominal muscles is observed Short of this point the expiratory force seems to lie in no muscle but in the lungs alone, and if the resistance is slightly diminished, so that some air can be expired in spite of the resistance, the chest walls will not come into action unless, and until, asphyxia is beginning to develop—that is to say, with 7 or 8 cm of water pressure obstruction, expiration is carried out by the lungs alone In the cat in a vertical position with the abdomen widely opened the elastic recoil of the lungs is sufficient to elevate the diaphragm, liver, and stomach, with the added load of 25 g There is no reason to think that the human lungs are less efficient

In quadrupeds, therefore, quiet expiration is carried out by the elastic recoil of the lung associated with a passive falling back of the diaphragm Thoracic expiration, such as it is, and confined to the lower part of the chest, may be either due to elastic recoil of the ribs or assisted by muscular action

In Man —When we apply these factors of the mechanism of expiration to the upright posture of man we find the conditions different The elasticity of the lungs remains, but consequent upward movement of the relaxing diaphragm is hindered by the action of gravity on the abdominal contents We are met with a new condition in the development o greater respiratory movement in the thorax, notably in the upper ribs, which are not now used to support the weight of the body Gravity will, however, operate to depress the thorax elevated in inspiration.

Thus we see that orthograde man has converted the help of gravity on the diaphragm in expiration into a loss, but has gained by taking his weight off the upper limb, and so allowing the thorax to expand more easily.

The Action of the Abdominal Muscles

The action of the abdominal muscles in man is important in this connexion. It is tempting to think that the abdominal muscles by their contraction on the abdominal viscera are reciprocal antagonists to the diaphragm, and will push the diaphragm upwards I believe that this is not their function though the elastic recoil of the abdominal wall may have such an effect

We find that there are a number of people who, examined in the standard posture I have described, protrude the epigastrium by means of the diaphragm during inspiration, but develop no contraction in their abdominal muscles which can be detected either in inspiration or expiration. In another class abdominal muscular contraction can be detected during expiration; if constriction be applied to the lower part of the thorax in these individuals the abdominal muscles become quiescent, although the inspiratory propulsion of the abdomen is increased And again, if an individual is laid supine there may, or may not, be expiratory contraction in the abdominal muscles, but in any case this is produced or increased when the foot of the couch is elevated This elevation of the foot of the couch must increase the tendency of the abdominal contents, by the action of gravity, to move towards the head, and thus press the diaphragm up and assist expiration, and in this case the abdominal muscular contraction would be redundant At the same time this position does tend to cause the thorax to proceed in the cephalic direction, and in order to produce the next inspiration it is requisite that the thorax be restored to its original position—that is, towards the hinder extremity. The abdominal muscles in this position must act as depressors of the thorax Further, in the case of a boy with congenital absence of all abdominal muscles,[10] respiration was chiefly by the diaphragm and not, as anticipated, by the thorax[*] This boy could play full back at Association football

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* The asterisks throughout refer to points demonstrated by means of lantern slides

† It is worth drawing attention to the fact that many investigations * have been made on the diaphragm to show that it is not of the same constitution as an ordinary voluntary muscle These have failed to demonstrate any difference of structure between the muscle-fibres of the diaphragm and those of other [illegible] muscles, and I shall show they are similar in resp[illegible]

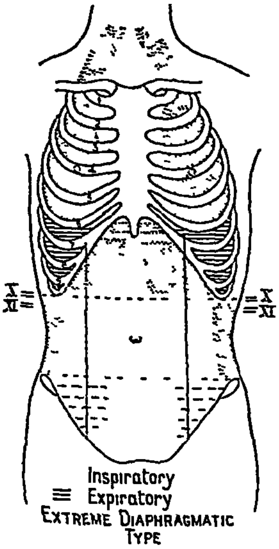
There is thus good reason to believe that the abdominal muscles connected to the thorax assist in the expiratory act of the thoracic mechanism, and not in that of the diaphragm, and we must accordingly assume that in the orthograde who inspires mainly with his diaphragm the important function in expiration is the elastic recoil of the lung.

Inspiration Preparatory to Expiration

(*a*) *Diaphragmatic*—In quadrupeds inspiratory enlargement of the cavity of the thorax is mainly in the long axis of the body In orthogrades there is the additional capacity to enlarge in the transverse and anteroposterior diameters In animals there is but little thoracic expansion, the mechanical advantage in expiration lies in a preceding inspiratory increase of the long axis of the thorax, for it is in this axis that the main bronchus to the lower lobe is to be found, and it is around this structure that the great mass of elastic tissue of bronchi and vessels is situated In man the cavity of the thorax can be increased in this direction by two means, by the depression of the diaphragm, or by an elevation of the thorax, the diaphragm remaining taut, and can be further increased if the lower borders of the bony thorax, from which the taut diaphragm takes origin, are depressed In man, the muscles which can be palpated and are found to be concerned in this act of enlargement are, at the upper part of the thorax, the scalenes and, at the lower part, the external oblique controlling the tenth, eleventh, and twelfth ribs, that part of the transversalis abdominis controlling the seventh, eighth and ninth, and that part of the triangularis sterni controlling the sixth rib (Figs 1 and 2) By these muscles the whole chest is elevated and the three lower ribs tend to be moved towards the pelvis The sixth, seventh, eighth and ninth are drawn towards the middle line and depressed, or prevented from rising during inspiration Elevation of the thorax by the scalenes alone causes an increase in the anteroposterior and lateral diameters This is seen in cases of paraplegia from lesions in the lower cervical and upper dorsal regions This elevation of the thorax by the scalenes has a somewhat similar effect on the upper ribs to that produced by contraction of the intercostal muscles These ribs are raised and the anteroposterior diameter especially the transverse to some extent, are increased The lower end of the sternum is rotated forwards owing to the greater length of the sixth and seventh ribs

When expiration occurs these muscles relax, the chest as a whole descends by gravity, and to restore the lower ribs to their original positions the intercostals of the lower spaces contract This muscle complex is one not infrequently met with in those whose type of breathing is not at all thoracic or intercostal They are of the type of visceroptosis or provisceroptosis It is noteworthy that in inspiration both the diaphragm and the muscles of the abdominal wall in the epigastric and lateral regions contract, leaving the umbilical and hypogastric regions unprotected by muscular effort

FIG 1



The contraction of the upper intercostal muscles is much less in the extreme diaphragmatic type of breathing than in the extreme thoracic type

FIG. 2

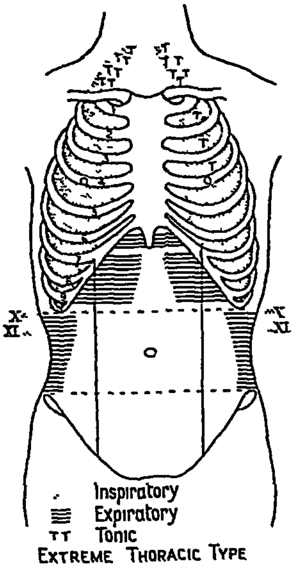
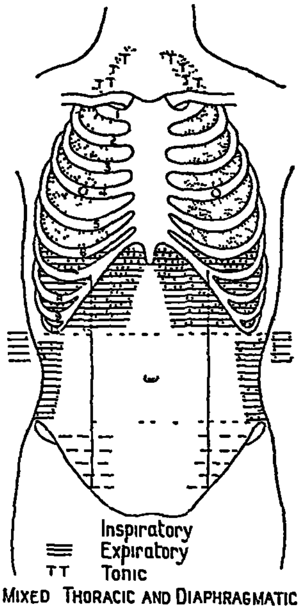


FIG. 3.



(*b*) *Thoracic*—The thorax can be expanded in its individual parts by the intercostal and interchondral muscles which elevate and evert the ribs The greatest increase is in the transverse axis In this type of breathing, when easy, the thorax as a whole is not elevated by the scalene muscles In the thoracic type as an auxiliary to inspiration the chest can be held elevated as a whole by the scalene muscles, and especially by the anterior scalene which possesses a mechanical advantage over the other scalenes as regards elevating By raising the first rib a mechanical advantage is afforded to the ribs lying caudalwards By holding the first rib elevated this mechanical advantage is further increased, the ribs being already partially raised and everted prior to the commencement of the intercostal inspiratory contraction[‡]

In expiration the intercostals relax and the ribs descend, but the elevation by the scalene action frequently remains This type is found in those who do not distend the abdomen in inspiration, but in whom the epigastrium may actually recede

The structure of the lung is such that the elastic recoil cannot be as great in the transverse as in the longitudinal axis Expiration in the thoracic type of breathing is assumed to be dependent on the force of gravity acting upon the elevated ribs causing reduction of the lateral and anteroposterior diameters, the muscles elevating the ribs relaxing These diameters can be further reduced by the constricting action of the triangularis sterni, transversalis abdominis, and lateral oblique muscles * The elastic recoil of the ribs and cartilages may also play a part It is, however, uncertain whether the recoil assists inspiration or expiration

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[‡] Sometimes, in addition, a contraction can be felt during expiration in the scalene muscles, and if so it will be found in the anterior scalene The explanation of this latter contraction is not obvious Prof Barclay Smith has suggested that in some cases its arrangement may be such that by contracting it pulls back the first rib, and so tends to depress the thorax or it may ease the descent of the thorax The interchondrals of the upper spaces occasionally contract during expiration though usually this action is inspiratory

The purer the type of thoracic breathing the less will be the increase in the long axis and the less the expiratory action of the elastic tissue of the lung in that particular axis Expiration will be the more efficient the greater the elevation and the eversion of the ribs during the preceding inspiration

Again we find the muscles in the epigastric and lateral abdominal wall regions contracting simultaneously, but in expiration, and no contraction occurring in the umbilical and hypogastric regions In the expiratory phase, however, there is not such an increased intra-abdominal tension, the diaphragm not descending There is, therefore, not the same tendency to a yielding of the hypogastrium as occurs in the diaphragmatic type

COMBINED DIAPHRAGMATIC AND THORACIC

Thus it is seen that we have an apparent paradox in that a muscle may be now inspiratory in function, now expiratory The combinations which occur in the average individual who is a mixture of these extreme types (Fig 3) make the matter one of great complexity The contraction which helps inspiration in the pure thoracic type may have the *opposite effect* in the diaphragmatic type and help expiration—e g , the intercostal muscles of the lower spaces Further, a muscle may be both inspiratory and expiratory in action during the course of a single complete respiration A common example of this latter is found in the actions of the triangularis sterni In addition some of the powerful muscles concerned in maintaining posture are attached to and affect the movements of the whole or parts of the thoracic cage—e g., the rectus abdominis The important fact to remember is that in *any individual an alteration of attitude or position of body will alter the manner of breathing*, as a result of alteration in and the contraction of different muscles.

CONDITION OF MUSCLES NOT ACTIVELY CONTRACTING

A further very important question in connexion with the muscular side of the respiratory act is that of the condition of those muscles constituting the walls of the thoracic cavity during any period when they are not actively contracting Though in this sense they may be relaxed their condition in no way resembles that of paralysed muscles They are in a condition of postural tone, which is appreciated as a persistent resistance by the finger In the same manner the diaphragm, however small may be the contraction of the dome in the thoracic type, must maintain a continuous degree of tone, otherwise it would be drawn up into the chest during inspiration Such an *inspiratory elevation relative* to the chest wall has, I believe, never been seen by the X rays except where the phrenic nerve is paralysed

I therefore believe that those respiratory muscles which are neither actively contracting nor in flaccid relaxation are in *a condition of mild persistent contraction—postural tone* ||

As stated previously, the majority of individuals *tend* to employ a combination and alternation of these two mechanisms, the thoracic and diaphragmatic, and the conditions under which various movements occur now remain to be discussed This involves a consideration of the present-day teaching in respect of nervous impulses and muscular contraction

Physiology—The all-or-none theory is accepted for both By this is meant that if a nerve-fibre conducts an impulse at all, it will be of the maximal strength possible for the condition of the nerve at that time, and similarly, when an individual muscle-fibre is excited its response is maximal if it responds at all In order to account for the graduated action of muscle, it is assumed that except in maximal activity all the nerve-fibres of a nerve are not activated at the same time, and, therefore, all the fibres of a muscle supplied by the nerve are not brought into action at the same moment As regards the nature of nerve discharge, it has been shown by Dittler[11] in the phrenic nerve that both during inspiration and expiration action currents can be detected, and that in inspiration these are at the rate of a considerable number per second They have been variously estimated at 30 to 90 or more per second

Of muscle there are several functions which should be mentioned As regards the actual contraction of muscle, Starling [2] states, "So far, therefore, the evidence is in favour of the view that voluntary contraction and tonic contraction of all skeletal muscles are discontinuous in nature, and analogous to the tetanus which we may evoke artificially by rapid stimuli, either of muscle or of motor nerve," and again, "Both in muscle and nerve the evidence is that each contraction is a fused series of single contractions evoked by discharge down the nerve of 50 to 70 excitations per second" There is also evidence to show that summation of nervous stimuli is responsible for the slow tetanic contraction of muscle and such nervous impulses must of necessity be minimal The example quoted by Starling is that of the retractor penis For this muscle a stimulus can be found which is insufficient to produce a contraction If repeated, the first three or four may be ineffective and then contraction occurs, increasing with each succeeding stimulus until a maximum is attained The same initial increase of effect is observed when a voluntary muscle is excited continuously by recurring stimuli

The term "tone" is applied to muscle in two senses, first, in the popular sense in which tone indicates well-being Of the factors concerned in this little is known, except that when individuals are in general good health the tone of muscle is also good, and it may be assumed that such conditions as produce ill-health have a certain effect in diminishing the tone of the muscles

The second application of the term "tone" is connected with the condition of postural tone, which has been so largely elucidated by Sherrington[13] *Postural tone* implies a condition of contraction of muscle to maintain a part in a certain position against resistance, and can be sustained for long periods Action currents have not been detected hitherto in this condition It is chiefly concerned in the maintenance of certain postures such as standing and can be relaxed or resumed in accordance with the needs of the body when movements are performed or cease Sherrington gives as an example, which is readily understood, the condition of the bladder which maintains a constant pressure on its contents, although allowing a gradual addition to those contents It is, theoretically, quite probable that such a condition *exists in the respiratory muscles to prevent intercostal* spaces falling in to *maintain* thoracic elevation, and to maintain the level of the *diaphragm*

There *is also to be considered* the effect of tension of the muscle, or as it may *preferably* be called "*stretch*" This was the subject of work by *Blix*,[14] who showed that the degree of response of the muscle was considerably affected by the degree of *stretch*—i e , that stretching the muscle passively tended, within limits, to increase the strength of contraction when stimulated

This was also demonstrated by Prof Starling[15] in the Linacre Lecture as being of supreme importance in the response of the left ventricle of the heart

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|| The condition of inspiratory recession in the epigastrium which is met with in the marked type, and which formerly was attributed to a paralysis of the diaphragm is I believe the result of the sudden relaxation at the end of inspiration of the transversalis abdominis, and the resultant equally sudden eversion of the lower ribs, carrying with them the upper abdominal viscera, which allows a sinking in of the epigastrium Under such conditions a late and slight degree of propulsion is frequently seen in the epigastrium at the end of inspiration

when the output by the aorta was hindered. He showed that a process occurred by which the ventricle, not emptying itself fully with each contraction, dilated and accommodated more blood, thus stretching the individual muscle-fibres The subsequent contractions were, within limits, increased in force until the obstruction was overcome There is an optimum degree of stretch for this reaction With greater or less degree of stretch the strength of contraction diminishes

It remains to see whether these physiological laws can be applied to, and explain some of the phenomena which have been observed clinically

Of Nerve—Muscle Preparations

The problems connected with nerve and muscle have been freely studied by physiologists, but in a manner which, though producing interesting and valuable results to the physiologist, are of little direct use to the clinician The stimulus applied to the nerve is of such a strength that it is extremely improbable that stimuli or muscle contractions of similar strength ever occur under natural conditions Both in form and degree the contraction produced by maximal stimuli is totally unlike that which occurs in the body, and in order to arrive at conclusions which might assist clinical observations, it became necessary to imitate more closely the conditions which actually occur in the body.

Clinical Observations

The clinical observations which led to this line of investigation were 1 The effect of abdominal distension, with ascites or meteorism In the supine position the respiration is mainly diaphragmatic with epigastric protrusion When distension is relieved, the respiration becomes mainly thoracic 2 The contrast between the conditions present when the individual changes from a condition of standing slack to the upright The change from standing slack to the upright posture is associated with a diminution of the epigastric propulsion, thus indicating a diminution of excursion of the diaphragm This alteration is accompanied by a change in the relationship of the sternum and front part of the chest to the spine

Applied Anatomy.

The measurement from the spine of the twelfth dorsal or third lumbar vertebra to the articulation between the gladiolus and xiphisternum§ (the anteroposterior measurement) varies in the two postures It is increased in practically every individual when changing from the slack to the upright to some extent The actual difference, though not great, is of considerable importance, it varies from nothing to 2 cm , is least marked in those people of the pronounced abdominal or thoracic types of breathing, and more marked in the average individual, a combination of these two types If an allowance of 3 in , or 7 cm is deducted for the structures external to the diaphragm, the vertebra and sternum, &c., this will leave a measurement falling between 7 25 and 14 cm for the distance between the inner surfaces of the vertebræ and the back of the sternum or seventh costal cartilage Increasing that distance by a centimetre is adding to that distance an amount equal to 14 per cent down to 7 per cent The percentage when applied to the muscular part of the diaphragm is greater than the figures given, for no allowance has been made for the central tendon which should be credited with from 2 to 5 cm

The movement of flexion and extension of the spine takes place chiefly in the lower dorsal and upper lumbar regions The tendon of the crus of the diaphragm arises from the third lumbar vertebra; muscle-fibres of the crus arise from this tendon and also largely from the tendinous arch over the front of the aorta at the level of the twelfth dorsal vertebra

It is in this mesial anteroposterior direction that the diaphragm is least curved, and is maintained in position of elevation by the right border of the pericardium, and also it is in this direction that the fibres stretching from the bony points to the central tendon are of shortest length A considerable alteration in the stretch of the muscle-fibres is thus produced in the mesial anteroposterior portion of the diaphragm when changing from slack to upright It was concluded from this observation that the effect of the change from the slack to the upright posture increased the stretch and therefore the contraction of the mesial anteroposterior portion of the diaphragm, and diminished the stretch on, and the contraction of, the remaining portion

Experimental Confirmation —This latter point—stretch in the dome of the diaphragm—is difficult to substantiate owing to the curved condition of the muscle, and it was speculative Accordingly, in collaboration with Lady Briscoe,[16] the matter was investigated experimentally by her on the cat, and it was shown that the speculation was correct A pneumothorax was made on one side and records taken from the crus, and from that part extending from the central tendon to the costal border in the midaxillary line, the dome

It was found that in the ordinary experimental position the crus began to contract before the dome * When the back of the animal was slightly overextended the contraction of the dome was diminished and retarded * When the back was flexed the contraction of the crus was diminished while that of the dome was increased and appeared earlier * In this position it was clearly seen that the dome was pushed up towards the head by the abdominal viscera

Similar results were obtained by weak electrical stimulation of the phrenic nerve

When the abdominal cavity was distended with saline, thus imitating the pathological condition arising in the presence of ascites, the animal being in the usual flat position, the dome was also pushed up and its contraction became bigger and was advanced relatively to the crus as the abdominal distension was increased * These results could clearly be attributed to the stretch reaction

Importance of Stretch Reaction —This demonstration is important as showing that the stretch reaction in the diaphragm is the same as that which occurs in a skeletal muscle An increase of stretch causes· (1) an earlier contraction , (2) a stronger contraction in the muscle It would thus appear to be a general reaction found in the heart, diaphragm, and skeletal muscles, and accordingly should also be applicable to the other muscles of respiration

Importance of Strength of Stimulus —The position arrived at, therefore, was that a stretch reaction explained this variation in the magnitude of the contraction in the diaphragm, that the same had been shown for heart muscle, and that Blix's law showed the same for ordinary skeletal muscle Blix, however, had used maximal stimuli, and it remained to see whether the law still held with submaximal stimuli more akin to those which we believed to occur naturally Accordingly the general question of the effect of increased stretch with weak stimuli was further investigated by Lady Briscoe [17] on the following lines The gastrocnemius (rabbits and cats) and the sciatic nerve were exposed ; no other dissection was made except that the tendon of the muscle was attached to a recording lever , the muscle could thus be stretched or relaxed by simply altering the position of the foot Weak break shocks were then sent in at regular intervals ; it was found that the muscle, when put on the stretch, responded to stimuli which were ineffective when the muscle was relaxed * This distinction failed when the sciatic nerve was severed from its connexion with the cord

Objection might be made to the assumption that experimental stimuli are stronger than those which occur under ordinary circumstances in the body. To meet this objection it is necessary to produce a contraction artificially which should resemble that which occurs under ordinary circumstances in the body, as opposed to the contraction produced by maximal stimuli. The diaphragm offers an ideal muscle for such an investigation because the normal respiratory movement of one half can be employed as a pattern to the result of artificial stimuli to the cut phrenic of the opposite side A very presentable imitation of the normal movement has been obtained by Lady Briscoe [18] by the following means —

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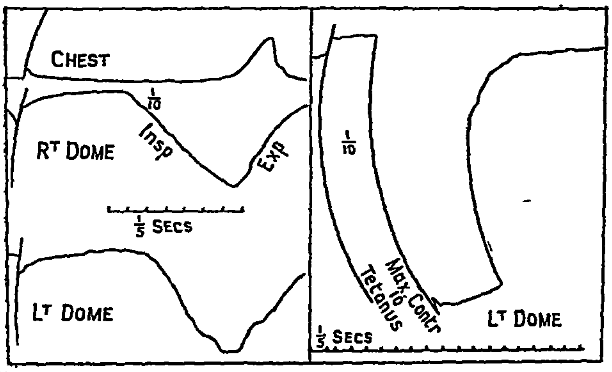
§ This is a convenient point of measurement, as giving similar relationships to that between the vertebral points and seventh costal cartilage one and a half inches from its junction with the sternum, this latter being the point of attachment of the diaphragm muscle anteriorly, and nearest to the middle line

FIG. 4.



Left half — Right dome is responding to a natural stimulus Left dome (paralysed, phrenic cut) responding to a graduated electrical stimulus *Natural contraction 1 1/5 second*
Right half — Left dome response to maximal tetanising current Maximal contraction attains in less than 1/5 second a shortening three times greater than a normal contraction

The only dissection required is opening the abdomen to fix hooks on the under surface of the domes, and a dissection of the phrenic nerve on one side The nerve is then tied off and cut and artificial stimuli applied in the following manner The electrodes are placed and left in position A faradic current used with a secondary coil which can be freely moved to increase and decrease the current is connected to the electrodes The coil is placed so that a very weak current is passing through the nerve, but insufficient to produce any contraction When the lever on the control side is seen to commence moving in inspiration the secondary coil is pushed up so as to increase the current The lever on the experimental side then proceeds to move, and the tracing shows a graduated contraction of the experimental half of the diaphragm This is in complete contrast to the contraction produced by a maximal single stimulus (Fig 4) This is precipitate and considerably larger than the control side When the contraction of the normal side has ceased and expiration is commencing the coil is gradually drawn down to its original position and produces a graduated relaxation So far as I know this is the first successful demonstration of an imitation of a normal contraction and emphasises the submaximal character of normal stimuli and contractions

Deduction —Several points arise from this experimental work · (1) The nerve discharge in ordinary respiration is not as great as that evoked by the usual maximal stimulus (2) The diaphragm is accordingly not forced into a maximal contraction (3) The nerve discharge is one which waxes during an ordinary inspiration and wanes during expiration (4) The influence of stretch is of paramount importance both in the selection of which muscle or part of the muscle shall contract, and in the degree of contraction, and in the time of commencement of the contraction

As a corrollary. when evaluating an increased movement in a tracing we must appreciate that there may be an underlying increase of stretch in the muscle or muscles

THEORY BASED ON EXPERIMENTAL RESULTS

If, then, we picture the crescendo of impulses descending the nerves which innervate the respiratory muscles of respiration, those muscles will contract first and most which are in the most suitable degree of stretch If such contraction increases the stretch of other muscles, these will in turn contract, and the shower of impulses will continue until the respiratory centre has been satisfied and an adequate amount of air has entered the lungs This will entail a certain expansion of the thoracic cavity Such an expansion may occur through the action of the domes of the diaphragm or through the muscles which expand the bony thorax Which of these two sets of muscles is *ultimately* in action will depend upon whether the domes of the diaphragm are in a greater degree of stretch than the remaining muscles of the thorax, if the dome is not in a suitable degree of stretch to pick up the stimuli these will then activate the muscles which operate on the chest wall It will thus be seen that I am according the greatest function to the diaphragm, and consider that the chest is of secondary importance This is supported by the fact that normally in practically every case the epigastric movement precedes the movement of any part of the thorax, though the relationships can be varied

Similarly for expiration, if the natural forces of lung elasticity and gravity are insufficient, or muscular action is required, those expiratory muscles operating on the thorax under stretch will contract

FIG. 5

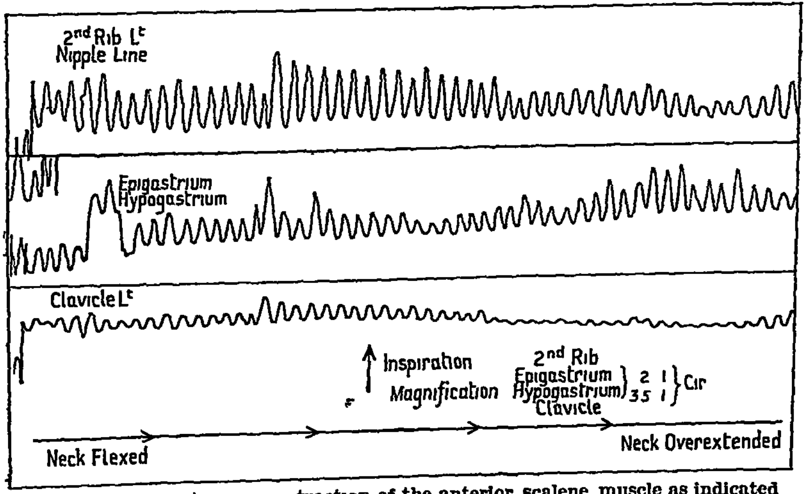


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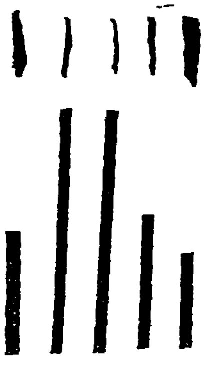
FIG 6



Top row sections of diaphragm Lower row length of muscle fibre from attachment to insertion
From left to right (1) from a point half way between nipple and mid-sternal lines, (2) from mid axillary line, (3) from posterior axillary line, (4) from the top of the twelfth rib, (5) from the crus

Application of Theory to General Observations

The same law of stretch explains the following phenomena observed clinically: 1 All conditions producing extension of the spine diminish the tension in the domes of the diaphragm and so increase the tendency to thoracic expansion by widening the intercostal space Such are: (*a*) change from slack to upright by order deliberately or subconsciously in anger anxiety, &c , (*b*) supine posture or reclining when the surface on which the back rests is flat

2 All conditions increasing flexion of the spine increase the stretch in the domes and diminish the intercostal spaces and the tendency to thoracic expansion: (*a*) change from upright to slack, (*b*) reclining as in a hammock or similar arrangement. If the latter is pushed to the extreme the intercostals cease to contract at all and the spaces recede in inspiration

3 Increased intra-abdominal pressure by gas or fluid will place the domes under stretch and promote contraction and diminish thoracic expansion.

4 With the back in a constant position, extension of the head increases the stretch of the anterior scalene, elevates the thorax, and produces an increased movement of the ribs (Fig 5)

5 Lateral flexion of the spine increases the movement of the ribs on the convex side; the intercostal spaces are rendered wider and the muscles put on the stretch Conversely on the concave side the spaces are narrowed, the muscular adjustment approximated, stretch is decreased, and the action diminished

6 Elevation of the ribs by the intercostals increases the stretch on the transversalis triangularis, and lateral abdominal muscles, and renders them receptive to expiratory impulses

7 When these muscles contract in inspiration, and pull down the lower ribs, the lower intercostals are stretched and contract in expiration.

8 In the analysis of tracings of respiratory movements I find that the larger the contraction the earlier it appears to commence (Fig 6)

The construction of the diaphragm is in accord with this theory, for where the shorter length of muscle from origin to insertion is found, there is the greater mass of muscle-fibres [*] This is an optimum condition for efficiency on the basis of the stretch reaction.[†]

SUMMARY

The question of stretch then governs the order in which muscles will contract and the power they will put into that contraction The diaphragm is almost the only respiratory muscle worth considering in quiet breathing in animals and remains the most important in man though in him it has lost some mechanical efficiency through his orthograde habit Man is forced to compensate for this relative deficiency of the diaphragm by a greater use of other muscles, these other muscles acting either by active contraction or by persistent tonus of postural type If exaggerated these actions are not a normal use of muscle but an abnormal over-use, and in consequence a possible source of trouble

(*The bibliography, to which references are given in this lecture, will appear with the third lecture*)

[†] As a corollary, the varying length of muscle-fibre must lead to variations in stretch effect, the longer fibres will be the least influenced by a given stretch The longest fibres of the diaphragm are those which originate in the axillary area where also the bulk of muscle is least. I therefore think that these are the last of the diaphragm fibres to come into contraction, and the first to fail to contract Such a conception is suggestive in relation to physical signs—e g , of pleural effusion.

NEW HULL INFIRMARY—Plans have been completed for the erection of a new infirmary with 500 beds at Sutton, East Yorkshire, on a site of 50 acres, given by Mr Phillip Reckitt The cost will be about £15,000.

LIVERPOOL HEART HOSPITAL—Good progress during its first year was reported at the annual meeting There are at present only 17 beds, but the committee are anxious to open three more wards of 12 beds each.

Goulstonian Lectures
ON
CARDIAC DYSPNŒA.

The Third Goulstonian Lecture in 1927, delivered before the Royal College of Physicians of London on March 17th

BY FRANCIS R FRASER, B A. CAMB , M.D ,
F R C P. EDIN , F.R C.P LOND.,
DIRECTOR OF THE MEDICAL PROFESSORIAL UNIT,
ST BARTHOLOMEW'S HOSPITAL; PROFESSOR OF
MEDICINE IN THE UNIVERSITY OF LONDON

LECTURE III.[*]

CAUSES OF THE INCREASED VENTILATION.

THE results of the examination of the arterial blood in these cases agree in general with those of other observers In spite of using venous blood for the construction of the dissociation curve and so obtaining values for the carbon dioxide pressure that may err on the high side, Campbell, Hunt. and Poulton[20] found that while some cases of mitral stenosis with dyspnœa had low arterial carbon dioxide values, others had raised values with a fall in oxygen saturation They found the carbon dioxide combining power about the lower limit of the normal, and the hydrogen-ion concentration within normal limits The patients with arterial disease and myocardial degeneration investigated by them had more pronounced pulmonary complications than those in this series and their findings in them were similar to those in the third group in this series Peters and Barr[21] considered a carbon dioxide acidosis to be the cause of cardiac dyspnœa, but base their opinion on dissociation curves constructed with venous blood Peters[38] found the alveolar carbon dioxide pressure to be low in comparison with the capacity of the venous plasma, and presumed that the hydrogen-ion concentration of the blood was raised Peters and Barr,[21] and Campbell, Hunt, and Poulton[20] found that the carbon dioxide pressure in the arterial blood is higher than that in the alveolar air in severe failure Several writers have reported on the arterial carbon dioxide content and on the capacity or combining power in heart failure, notably Harrop,[18] Barach and Woodwell,[19] and Meakins and Davies[2] In general they find low arterial carbon dioxide contents and normal or low normal capacities, except in severe congestive failure, more especially in cases of myocardial degeneration, when high arterial carbon dioxide contents appear to be the rule. There are no reliable figures in the literature for the hydrogen-ion concentration obtained by direct observation on the arterial blood and the calculated values are unreliable since they are calculated on pressure values obtained from curves constructed with venous blood The colorimetric method used in this series is not reliable, in that the factors that may be present in disease and may give rise to error are not yet known, but it gives values independent of the carbon dioxide determinations that have at least a comparative value in repeated observations on a single case Lewis and Barcroft[39] estimated the reduction in ' alkalinity ' or the excessive amount of fixed acid present by the oxygen saturation of the blood at 17 mm pressure of that gas. They found some degree of acidosis to be common in the cardiac dyspnœa of elderly or middle-aged patients and to be especially common in terminal heart failure Such a condition was well seen in Case 10 in this series The readjustment of base that takes place in the presence of low carbon dioxide tensions so that the carbon dioxide capacity or combining power is lowered would account in a further number of their cases for the apparent " acidosis ' obtained by their methods All these results by other observers are compatible with the results in this series when it which occurs under ordinary circumstances in the body, as opposed to the contraction produced by maximal stimuli The diaphragm offers an ideal muscle for such an investigation because the normal respiratory movement of one half can be employed as a pattern to the result of artificial stimuli to the cut phrenic of the opposite side. A very presentable imitation of the normal movement has been obtained by Lady Briscoe[18] by the following means —

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[*] Lectures I and II appeared in THE LANCET of March 12th and 19th respectively.

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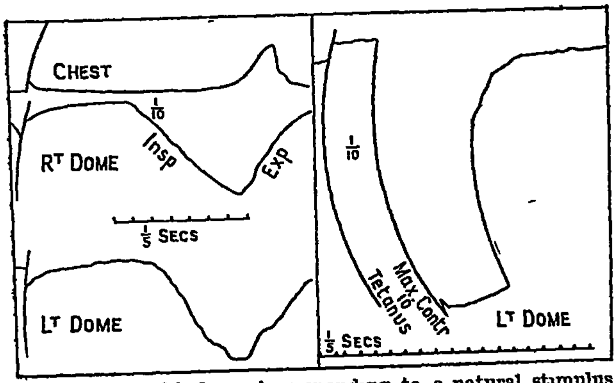

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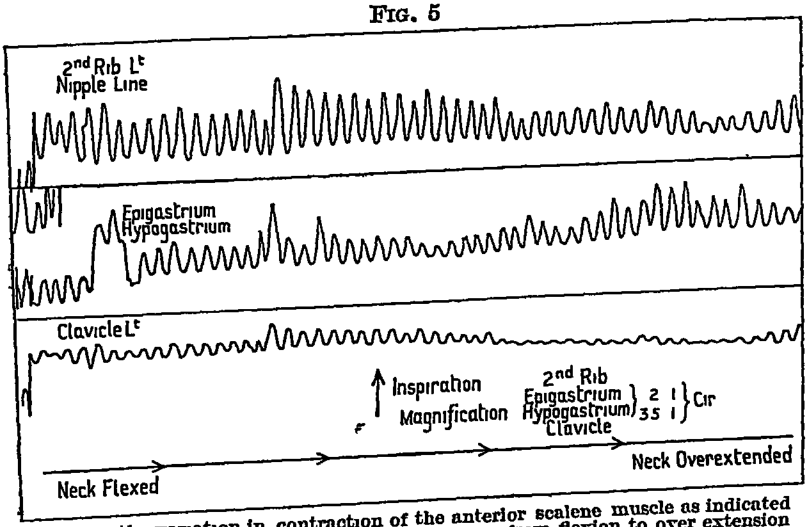

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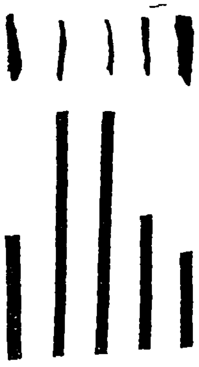

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Application of Theory to General Observations.

The same law of stretch explains the following phenomena observed clinically: 1. All conditions producing extension of the spine diminish the tension in the domes of the diaphragm and so increase the tendency to thoracic expansion by widening the intercostal space. Such are: (*a*) change from slack to upright by order deliberately or subconsciously in anger, anxiety, &c., (*b*) supine posture or reclining when the surface on which the back rests is flat.

2. All conditions increasing flexion of the spine increase the stretch in the domes and diminish the intercostal spaces and the tendency to thoracic expansion: (*a*) change *from upright to slack*, (*b*) reclining as in a hammock or similar arrangement. If the latter is pushed to the extreme the intercostals cease to contract at all and the spaces recede in inspiration.

3. Increased intra-abdominal pressure by gas or fluid will place the domes under stretch and promote contraction and diminish thoracic expansion.

4. With the back in a constant position, extension of the head increases the stretch of the anterior scalene, elevates the thorax, and produces an increased movement of the ribs (Fig. 5).

5. Lateral flexion of the spine increases the movement of the ribs on the convex side; the intercostal spaces are rendered wider and the muscles put on the stretch. Conversely on the concave side the spaces are narrowed, the muscular adjustment approximated, stretch is decreased, and the action diminished.

6. Elevation of the ribs by the intercostals increases the stretch on the transversalis, triangularis, and lateral abdominal muscles, and renders them receptive to expiratory impulses.

7. When these muscles contract in inspiration, and pull down the lower ribs, the lower intercostals are stretched and contract in expiration.

8. In the analysis of tracings of respiratory movements I find that the larger the contraction the earlier it appears to commence (Fig. 6).

The construction of the diaphragm is in accord with this theory, for where the shorter length of muscle from origin to insertion is found, there is the greater mass of muscle-fibres.[*] This is an optimum condition for efficiency on the basis of the stretch reaction.[¶]

Summary

The question of stretch then governs the order in which muscles will contract and the power they will put into that contraction. The diaphragm is almost the only respiratory muscle worth considering in quiet breathing in animals, and remains the most important in man, though in him it has lost some mechanical efficiency through his orthograde habit. Man is forced to compensate for this relative deficiency of the diaphragm by a greater use of other muscles, these other muscles acting either by active contraction or by persistent tonus of postural type. If exaggerated these actions are not a normal use of muscle but an abnormal over-use, and in consequence a possible source of trouble.

(*The bibliography, to which references are given in this lecture, will appear with the third lecture.*)

[¶] As a corollary, the varying length of muscle-fibre must lead to variations in stretch effect; the longer fibres will be the least influenced by a given stretch. The longest fibres of the diaphragm are those which originate in the axillary area, where also the bulk of muscle is least. I therefore think that these are the last of the diaphragm fibres to come into contraction, and the first to fail to contract. Such a conception is suggestive in relation to physical signs—e.g., of pleural effusion.

New Hull Infirmary.—Plans have been completed for the erection of a new infirmary with 500 beds at Sutton, East Yorkshire, on a site of 50 acres, given by Mr. Phillip Reckitt. The cost will be about £15 000.

Liverpool Heart Hospital.—Good progress during its first year was reported at the annual meeting. There are at present only 17 beds, but the committee are anxious to open three more wards of 12 beds each.

Goulstonian Lectures
ON
CARDIAC DYSPNŒA.

The Third Goulstonian Lecture in 1927, delivered before the Royal College of Physicians of London on March 17th

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LECTURE III[*]

Causes of the Increased Ventilation.

The results of the examination of the arterial blood in these cases agree in general with those of other observers. In spite of using venous blood for the construction of the dissociation curve and so obtaining values for the carbon dioxide pressure that may err on the high side, Campbell, Hunt, and Poulton[20] found that while some cases of mitral stenosis with dyspnœa had low arterial carbon dioxide values, others had raised values with a fall in oxygen saturation. They found the carbon dioxide combining power about the lower limit of the normal, and the hydrogen-ion concentration within normal limits. The patients with arterial disease and myocardial degeneration investigated by them had more pronounced pulmonary complications than those in this series, and their findings in them were similar to those in the third group in this series. Peters and Barr[21] considered a carbon dioxide acidosis to be the cause of cardiac dyspnœa, but base their opinion on dissociation curves constructed with venous blood. Peters[38] found the alveolar carbon dioxide pressure to be low in comparison with the capacity of the venous plasma, and presumed that the hydrogen-ion concentration of the blood was raised. Peters and Barr,[21] and Campbell, Hunt, and Poulton[20] found that the carbon dioxide pressure in the arterial blood is higher than that in the alveolar air in severe failure. Several writers have reported on the arterial carbon dioxide content and on the capacity or combining power in heart failure, notably Harrop,[18] Barach and Woodwell,[19] and Meakins and Davies.[2] In general they find low arterial carbon dioxide contents and normal or low normal capacities, except in severe congestive failure, more especially in cases of myocardial degeneration, when high arterial carbon dioxide contents appear to be the rule. There are no reliable figures in the literature for the hydrogen-ion concentration obtained by direct observation on the arterial blood and the calculated values are unreliable, since they are calculated on pressure values obtained from curves constructed with venous blood. The colorimetric method used in this series is not reliable, in that the factors that may be present in disease and may give rise to error are not yet known, but it gives values independent of the carbon dioxide determinations that have at least a comparative value in repeated observations on a single case. Lewis and Barcroft[39] estimated the reduction in "alkalinity" or the excessive amount of fixed acid present by the oxygen saturation of the blood at 17 mm. pressure of that gas. They found some degree of acidosis to be common in the cardiac dyspnœa of elderly or middle-aged patients, and to be especially common in terminal heart failure. Such a condition was well seen in Case 10 in this series. The readjustment of base that takes place in the presence of low carbon dioxide tensions, so that the carbon dioxide capacity or combining power is lowered, would account in a further number of their cases for the apparent "*acidosis*" obtained by their methods. All these results by other observers are compatible with the results in this series, when it is seen that the condition of the patient at the time of the observation may determine whether a low carbon dioxide pressure is found, or a raised pressure due to the œdema and other changes in the lungs that occur in the very advanced stage of failure The important cases from the point of view of determining the essential factors in the dyspnœa are the younger ones, who are less likely to have disturbances due to arterial and renal disease or to pulmonary disease in addition to heart failure

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[*] Lectures I and II appeared in The Lancet of March 12th and 19th respectively.

The stimulus to the respiratory centre, though independent of the quality of the arterial blood, may be the result of circulatory disturbances at the centre In heart failure the altered conditions of the circulation can result conceivably in changes in the tissues in two ways Slowing of the circulation so that the tissues receive less arterial blood may result in (*a*) a deficient supply of oxygen to the respiratory centre even though the blood contains a normal quantity of oxygen, and may result in (*b*) a raised carbon dioxide content and pressure in the venous and capillary blood, so that the tissues of the centre are exposed to a raised carbon dioxide pressure and increased hydrogen-ion concentration

The methods available for the estimation of the blood flow per minute are not yet suitable for the investigation of severely dyspnœic patients By practice, however, suitable patients can be trained to cooperate so that results of value are obtained The most satisfactory methods depend essentially on the estimation of the carbon dioxide pressure in the mixed venous blood from the pressure in the alveolar air when equilibrium with the blood in the lungs is established In practice this is a difficult procedure in a dyspnœic patient Barcroft, Bock, and Roughton [40] found a reduction in the minute volume of more than 50 per cent to occur in a case of paroxysmal tachycardia during the tachycardia Dautrebande, Fetter, and Meakins [22] found a similar reduction in a case of auricular fibrillation and mitral stenosis during an attack of severe tachycardia. Meakins and Davies [2] found in two cases of auricular flutter that the minute volume was reduced when the ventricular rate was increased In cases of mitral stenosis in which clinical evidence pointed to a considerable degree of stenosis the circulation rate was diminished. In two cases of syphilitic disease of the aorta with aortic regurgitation the minute volume was greatly reduced with the onset of congestive failure In one case of myocardial degeneration, an increase in the degree of failure was accompanied by a greatly reduced minute volume These results are sufficient to support the view that cardiac disability sufficient to produce dyspnœa at rest is accompanied by a reduction in the minute volume, and indicate that this reduction may be as much as 50 per cent or more

Peabody, Meyer, and Du Bois [41] have estimated the metabolism in cases of cardiac insufficiency with dyspnœa, and find that it is increased over the normal and that the increase may be as great as 25–50 per cent Their results have been confirmed by Hamburger and Lev,[42] and by Shapiro [43] Eppinger, Papp, and Schwarz [23] estimated the difference in the oxygen content of the arterial blood and of the blood from the arm veins in normal subjects and in cases of different types of dyspnœa In cases of heart failure with valvular disease they found a pronounced increase in the amount of oxygen extracted by the tissues from a given volume of blood in the majority of cases This increased utilisation was more marked in cases of mitral valve disease than in cases of aortic valve disease They point out that blood from the arm veins does not necessarily give a true indication of the general circulation In cases of dyspnœa with high blood pressure and heart failure they did not find evidence of increased utilisation

In cases of heart failure, therefore, such as those we have investigated, there is evidence to show that there is a raised metabolism and at the same time a diminished blood-supply to the tissues This condition will result in an increased utilisation of the oxygen in the arterial blood by the tissues From the shape of the dissociation curve of oxyhæmoglobin,[25] the increased volume of oxygen that the blood gives up in its passage through the tissues must be supplied at a mean pressure that is lower than normal Since, presumably, the tissues of the respiratory centre will be affected in common with the other tissues of the body, the centre also will receive its oxygen at a lowered pressure The centre will thus be stimulated and hyperpnœa will result At the same time the venous blood must be carrying an increased load of carbon dioxide, and the carbon dioxide pressure in the venous and in the capillary blood will be increased The reduction in the carbon dioxide pressure in the arterial blood in consequence of the increased ventilation due to the oxygen deficiency will to some extent compensate for this, as Pearce [44] has shown In cases with unhampered ventilation and efficient gaseous exchange this compensation may be sufficient, but in cases with pulmonary disease or with severe secondary changes in the lungs, there will probably be an additional stimulus to the centre in the raised carbon dioxide pressure at the centre If this was a constant factor in cardiac dyspnœa, one would expect, from the observations of Henderson and Haggard,[13] that the carbon dioxide capacities would be high, at any rate in young subjects without evidence of renal disease and in the less severe stages of failure In this series a raised carbon dioxide pressure in the arterial blood in young subjects is accompanied by a raised combining power or capacity (see Cases 5 and 17), but many of our cases of cardiac dyspnœa in otherwise comparable subjects have low capacities It is unlikely, therefore, that in them there is a raised carbon dioxide pressure in the tissues

Conclusions on Increased Ventilation

It appears, therefore, that (1) one constant stimulus to the respiratory centre in cardiac dyspnœa to produce increased ventilation is a deficient supply of oxygen, due to a diminished blood-supply to the centre , (2) in cases with pulmonary disease in addition, and cases of severe failure with pronounced secondary changes in the lungs, raised carbon dioxide pressure and increased hydrogen-ion concentration will act as an additional stimulus , and (3) in cases near death or in very advanced conditions of failure the retention of non-volatile acid substances will result in an increased hydrogen-ion concentration that will act as an additional stimulus In some cases under (2) and (3) a low oxygen saturation in the arterial blood may be present, and this will be a further factor in the stimulation of the centre

RESPIRATORY DISTRESS

In any explanation of cardiac dyspnœa it is not sufficient to show that the respiratory centre is stimulated, and that in uncomplicated cases the study of the arterial blood shows that there is hyperpnœa and increased ventilation To account for the dyspnœa it is necessary to show that the need for increased ventilation is greater than the pulmonary apparatus can meet easily and without the respiratory action entering the field of consciousness and so producing distress The factors that may interfere with efficient pulmonary ventilation have been fully discussed by Means[1] and Meakins and Davies [2]

Vital Capacity

In quiet, healthy breathing the amount of air that is inspired and expired at each respiratory cycle is about 500 c cm This is called the tidal air The amount that can be forcibly expired after a forced inspiration is between four and five litres This is called the vital capacity, and is divided into the complemental air which is the amount that can be forcibly inspired from the mid-position, and the reserve air or the amount that can be forcibly expired from the mid-position After a forcible expiration there is still a considerable volume of air in the lungs, called the residual air The tidal air can be greatly increased without dyspnœa arising, and Peabody [45] showed that if hyperpnœa is induced by breathing increasing concentrations of carbon dioxide, the tidal air may be increased 400 per cent. before distress becomes marked. The actual increase before the onset of distress varies considerably with individuals. Means and Balboni[46] showed that if the vital capacity is reduced *by half in artificial pneumothorax*, the tidal air increases with increasing concentrations of carbon dioxide as in the normal, but that dyspnœa appears much earlier. It is evident, then, that the relation of tidal air to vital capacity is important in determining the onset of dyspnœa. Vital capacities in healthy individuals have been carefully studied, and Dreyer's[47] conclusion that it is a simple function of the area of the body surface is generally accepted. The vital capacity in cases of congestive heart failure has been studied by Siebeck,[48] by Bittorf and Forschbach[49] and by Peabody and Wentworth.[50] They find a very constant reduction in vital capacity, which may be as low as one litre. Further, Peabody and Wentworth followed cases from stages of severe failure to those of comparative recovery, and found that as recovery occurred the vital capacity rose. The reduction of vital capacity affects the reserve air more than the complemental. To ascertain the cause of the reduced vital capacity, Drinker, Peabody, and Blumgart[51] carried out animal experiments. They concluded that the loss of elasticity of the lungs that results from congestion is the main factor, and that the greater the pressure in the pulmonary circuit the less the vital capacity. They point out that the actual enlargement of the heart and the increased quantity of blood in the pulmonary vessels must reduce somewhat the air-containing space in the thorax. The onset of œdema of the lungs and of fluid in the pleural cavities as extreme failure sets in will still further reduce the vital capacity. That a reduction in vital capacity is an essential factor in the production of cardiac dyspnœa is supported by the examination of the arterial blood in two cases of active heart disease who were without any respiratory distress when lying flat in bed. Case 20, aged 38, had subacute bacterial endocarditis with aortic regurgitation and mitral valve disease. The heart was dilated and there was œdema of the legs and a few râles at the bases of the lungs. Case 21 had active rheumatic carditis with aortic regurgitation and mitral disease, and the heart was dilated. The results of the examination in these cases are shown in Table VIII. The normal oxygen saturation, low carbon dioxide tension, and volumes with low normal capacities, and values for the calculated pH in the alkaline half of the normal range are similar to those found in the younger patients with mitral stenosis and auricular fibrillation and severe dyspnœa. The character of the arterial blood indicates increased ventilation therefore in both the dyspnœic patients and in Cases 20 and 21. The patients with dyspnœa differed from those two cases apart from the presence of respiratory distress, in that they had a high colour and more or less cyanosis indicative of some degree of venous engorgement. It is probable, therefore, that the incidence of the dyspnœa was determined by the reduction of vital capacity due to pulmonary vascular engorgement. The mechanism of heart failure in cases of mitral stenosis differs from that in cases of high blood pressure and myocardial degeneration in that pulmonary engorgement occurs at a much earlier stage in the failure, and this has most likely a causal relationship with the early incidence of dyspnœa in mitral stenosis, and its later incidence in cases of myocardial degeneration and high blood pressure when the stage of advanced failure is reached. It would appear, therefore, that the effort necessary to effect the required ventilation in the presence of the reduced vital capacity is a factor in bringing the respiratory act into the field of consciousness and producing distress.

TABLE VIII.

Result of examination of arterial blood in two cases of acute valvular disease without evidence of dyspnœa or heart failure at rest.

Case No	Age	Date in 1924	Dyspnœa at rest	Arterial blood.					
				O_2 capacity	O_2 saturation.	CO_2 content.	CO_2 capacity at 40 mm Hg.	CO_2 pressure from dissociation curve	pH calculated
				V %	%	V %	V %	mm	
20	38	30/6	Nil	17.7	100	36.7	42	28	7.42
21	16	14/4	Nil	14.8	97	40.0	43	29	7.44

V % = Volumes per cent

Shallow Breathing.

The type of breathing in cardiac dyspnœa is rapid and shallow as a rule. The chemical stimuli at the centre regulate the amount of alveolar ventilation, and when it is considered that the presence of a considerable dead space in the upper respiratory passages and bronchial tree must result in waste each time this space is filled and emptied, it is obvious that the deeper and fewer the respiratory movements are the more economical they will be in establishing the required ventilation. The type of breathing is normally regulated by the Hering-Breuer reflex. Afferent stimuli from the lungs are conveyed to the centre by the vagus nerves, so that when inspiration has proceeded to a certain extent, the inspiratory movement is inhibited and expiration takes place. Means[1] considers that the respiratory centre and the vagus inhibition are so regulated in health that a happy medium exists between slow deep breathing and rapid shallow breathing. Slower and deeper breathing would involve active respiratory efforts to expel some of the reserve air, and so lead to greater exertion than is necessary when normal tidal respiration with its passive expiratory phase is occurring, while shallower respiration by increasing the importance of the dead space would cause more rapid breathing and augment the work of the respiratory musculature in effecting the necessary alveolar ventilation. It is conceivable that some exaggeration of the vagus inhibition relative to the activity of the respiratory centre can bring about the shallow rapid form of breathing seen in cardiac dyspnœa. Haldane, Meakins, and Priestley[5] showed that shallow and correspondingly frequent breathing resulted from long continued oxygen want, and considered it due to fatigue of the centre. Davies, Haldane, and Priestley,[52] showed that this type of breathing resulted as a response to excessive and prolonged resistance. The rapid and shallow character of the breathing in cardiac dyspnœa may be the result, then, of fatigue of the centre and a relative exaggeration of the vagus inhibition of the inspiratory act, but the appearance of this character comparatively early in the course of mitral stenosis points to the mechanical limitation of expansion and reduction of vital capacity consequent on the vascular engorgement as the more important factor. In the later stages of failure gross œdema of the lungs will still further limit the depth of breathing, and the fatigue of the centre, due to anoxæmia and increased resistance, must undoubtedly add its effect. That shallow breathing can cause anoxæmia has been demonstrated by Haldane, Meakins, and Priestley.[53] A vicious circle will thus be established, and a dangerous and urgent stage of failure will be reached. The rapidity of the breathing that accompanies the shallowness in order to effect the necessary ventilation is probably a factor in causing consciousness of the respiratory movements and distress.

Conclusions on Respiratory Distress.

The slow circulation rate of heart failure which results in a stimulus at the centre for increased ventilation results therefore, at the same time in reduction of vital capacity by engorgement of the pulmonary circulation and in fatigue of the respiratory centre, so that the need for increased ventilation cannot be met without consciousness of the respiratory movements This produces distress or dyspnœa

ORTHOPNŒA

In all the cases of cardiac dyspnœa studied by us orthopnœa was present as well. There is evidence to show that this also is closely related to reduced vital capacity Christie and Beams[54] have shown that orthponœa only occurs when the vital capacity is reduced. Haldane, Meakins, and Priestley[5] believe that the fan-like expansion of the lung is less efficiently carried out in the lying than in the upright posture, and showed that constriction of the abdomen and thorax so as to limit the inspiratory movement caused less discomfort in the upright than in the lying posture If the breathing is of the rapid shallow type from respiratory fatigue, anoxæmia results more readily in the recumbent than in the upright posture The suggested explanation for the dyspnœa, therefore, accounts also for the orthopnœa

PERIODIC BREATHING

In two cases in this series Cheyne-Stokes' breathing occurred In Case 10 (see Tables III and VI) no periodicity was observable at the time of the first observation, but was obvious on the previous day. In Case 12 the periodicity was so pronounced at the first observation that the blood was obtained entirely during a period of hyperpnœa At the second observation it was still present, but was much less pronounced, and the time during which the arterial blood sample was withdrawn included both the phase of hyperpnœa and the phase of reduced respiratory movements The work of Douglas and Haldane,[55] and of Pembrey and Allen,[56] has demonstrated conclusively that this type of breathing is due to oxygen want at the respiratory centre The centre, therefore, functions about a lowered threshold of carbon dioxide pressure[4] Our results are quite compatible with this view, as the examination of the arterial blood shows merely the effects of hyperpnœa not due to oxygen unsaturation or carbon dioxide excess in the arterial blood Clinically, periodic breathing is rarely observed in cases of heart failure with marked stasis and venous congestion in which pulmonary ventilation is mechanically hampered, and is found most commonly in cases of arteriosclerosis or of raised intracranial pressure before the late congestive stage of failure is reached The precise relations of the circulation at the centre, and the oxygen and carbon dioxide pressures necessary to produce this rather uncommon respiratory disorder are still undecided. To account for the peculiar features of this type of respiration, for the experimental observations, and for its clinical incidence, it would appear that two conditions must be satisfied (1) the respiratory centre because of oxygen lack must be functioning about a lower threshold of carbon dioxide and hydrogen-ion concentration than normal and more sensitive than normal to variations in these factors; and (2) the pulmonary apparatus must be capable of considerable increase in alveolar ventilation, permitting the carbon dioxide pressure in the arterial blood to be readily lowered, and the carbon dioxide pressure at the centre to undergo considerable variations.

PAROXYSMAL DYSPNŒA

Cases 9, 11, and 16 in the present series were liable to attacks of paroxysmal dyspnœa of the type known as cardiac asthma At the second observation on Case 9 the arterial blood was taken during such an attack, but as the attack occurred at the onset of erysipelas which proved fatal, and at the time of the rapidly increasing fever of onset, the results cannot be regarded as typical In the other cases the observations were not made at the time of the paroxysms The recent work of Eppinger, Papp, and Schwarz,[23] on the condition of the circulation during attacks of cardiac asthma, and after relief by means of morphia, are of great interest and importance They employed several methods for estimating the circulation rate, and came to the conclusion that in a number of cases the minute volume of the circulation is increased above the normal during the paroxysm, and that it becomes less in recovery after the use of morphia This is a surprising observation and deserves careful consideration Paroxysms of cardiac asthma are accompanied by great distress and violent respiratory efforts Râles of pulmonary œdema are present and increase in number as the paroxysm continues, and the patient becomes cyanosed and may die Morphia stops the attacks and the râles diminish and disappear as the dyspnœa lessens Since cardiac asthma is not seen commonly in heart failure, there must be some causal factor in addition to the presence of heart failure with a slow general circulation rate, and in view of the findings of Eppinger, Papp, and Schwarz that the paroxysms continue in spite of a raised circulation rate, this causal factor must be independent of the general circulation rate Hofbauer[57] has suggested that local spasm of the arteries supplying the respiratory centre is the cause of the paroxysm, and quotes the frequency of arterial spasm in cases of cardiorenal disease in which this type of dyspnœa is most commonly seen, in support of the hypothesis The increasing cyanosis, the increasing pulmonary congestion, the raised circulation rate and the improvement after morphia, are not explained by this hypothesis Blalock, Harrison, and Wilson[33] have shown experimentally that in morphinised dogs obstruction to the respiration sufficient to produce anoxæmia caused the minute volume of the circulation to be much increased Harrison and Blalock[58] showed that in dogs trained so that the use of morphia was unnecessary, severe anoxæmia produced by breathing air poor in oxygen was accompanied by an increased cardiac output Huggett,[59] working with cats, found that obstruction to inspiration caused an increase in minute volume and stroke volume of the circulation, but that obstruction to expiration caused a diminution These experimental results suggest that inspiratory efforts in the presence of mechanical difficulties in the carrying out of the inspiratory act result in an increased blood flow to the heart through the action of the respiratory pump A flow of blood to the right heart and thence to the pulmonary circulation that is too great for the left ventricle to handle will result in an increased circulation rate and in increasing œdema of the lungs So long, therefore, as inspiratory effort and inspiratory difficulty continue in a case in which the left ventricle is working nearer the limit of its capacity than the right increasing pulmonary œdema may be brought about. The type of case in which cardiac asthma occurs is usually the cardiorenal or arterio-sclerotic, with signs of heart failure, and in this type the main stress falls on the left ventricle Whether the onset of the paroxysm is due to local vascular constriction at the centre, or whether it is due to the development of congestion and œdema of the bases of the lungs from the recumbent posture of the patient, or from the lack of conscious respiratory effort during sleep, or whether it is due to some sudden disablement of the left ventricle, such as coronary thrombosis or an abnormal rhythm, is uncertain Any of these possible causes of the onset of vigorous respiratory efforts will result, first, in the circulation rate being raised to the extent that the left ventricle is capable of, and then, if the left ventricle was previously working nearer to its maximum capacity than the right, in pulmonary œdema

If this is the explanation of the features of cardiac asthma, the relief obtained by morphia and the accompanying slowing of the circulation rate, noted by Eppinger, Papp, and Schwarz, are understandable Morphia acts on the respiratory centre to depress it, and will check the inspiratory efforts so that the blood flow to the heart is lessened, and the muscle of the left ventricle will have a chance to recover sufficiently to re-establish the balance between right and left ventricular output and to remove the immediate and urgent danger

Dyspnœa Possibly a Dangerous Reaction

The analysis of the different types of dyspnœa in heart failure points to the conclusion that, although the increased ventilation is of service to the body in that it tends to correct oxygen lack in the tissues and to restore carbon dioxide pressure and hydrogen-ion concentration in the tissues to normal values if these also are disturbed, respiratory efforts in the presence of resistance to the inspiratory expansion will be a source of urgent danger if the left ventricle is already working near its maximum capacity. Severe dyspnœa with increasing pulmonary œdema should, therefore, be immediately checked by the use of morphia. It is probable, as Wilson[60] has suggested, that in many cases with less urgent indications the use of morphia would be of more value than is usually realised. It has, however, serious drawbacks. The increased ventilation will be checked and the oxygen saturation of the arterial blood may thus be diminished and the tissue anoxæmia increased or the carbon dioxide pressure and hydrogen-ion concentration of the arterial blood and of the tissues may be unduly raised. These dangers were seen in Case 15, in which morphia was administered on two occasions. Table IX shows the results of the examination of the arterial blood before and after the administration of the morphia. On the first occasion an eighth of a grain was given, and the oxygen saturation dropped from 100 per cent to 80 per cent, and the carbon dioxide content and pressure rose, while the patient experienced great relief and showed no apparent ill-effects of the anoxæmia. On the second occasion the dyspnœa was less, and a sixteenth of a grain was given. There was again considerable relief but less striking than on the previous occasion, and the arterial blood showed no significant changes. Anoxæmia to the extent seen in this case after an eighth of a grain of morphia might well be fatal if the centres were already fatigued, and much caution is necessary before deciding to check dyspnœa in this way. Such a procedure would have a more general application if oxygen could at the same time be effectively introduced and supplied to the tissues. The present methods of oxygen therapy are not satisfactory, and more efficient and practical methods of administration are urgently needed. Such methods would be of inestimable value in permitting an extension of the use of morphia in the treatment of heart failure.

TABLE IX

Effect of morphia on the dyspnœa and the characters of the arterial blood in Case 15

Date in 1926	Morphia	Dyspnœa	Arterial blood					
			O_2 saturation	CO_2 content	CO_2 pressure		pH	
					From dissociation curve	From pH pressure curve	Colorimetric	Calculated
			%	V %	mm	mm		
15/2	Before	— — —	100	47.8	54*	40	7.42	7.23*
	½ hour after gr 1/8	—	80	50.8	60	56	7.37	7.20
22/2	Before	—	96	50.5	48	41	7.40	7.27
	½ hour after gr 1/16	Sl	95	52.8	50	45	7.42	7.27

* Figures uncertain since that for CO_2 pressure was obtained by extrapolation.   Sl = Slight

Whatever may be the value of treatment directed to the removal of a dangerous reaction, the basic fault in all forms of cardiac dyspnœa, as this analysis has shown and as Means[1] and Meakins and Davies[2] point out, is the inefficiency of the heart muscle, and treatment must be directed primarily to improving the efficiency of the myocardium and to diminishing the work that it is called upon to perform.

SUMMARY AND CONCLUSIONS

1. The study of the arterial blood in cases of cardiac dyspnœa shows the presence of factors producing increased ventilation or hyperpnœa, and indicates that (1) The one constant stimulus to the respiratory centre in cardiac dyspnœa to produce increased ventilation is a deficient supply of oxygen due to a diminished blood-supply to the centre. (2) In cases with pulmonary disease in addition and cases of severe failure with pronounced secondary changes in the lungs, raised carbon dioxide pressure and increased hydrogen-ion concentration will act as an additional stimulus. (3) In cases near death or in very advanced conditions of failure, the retention of non-volatile acid substance will result in an increased hydrogen-ion concentration that will act as an additional stimulus. (4) In some cases under (2) and (3) a low oxygen saturation of the arterial blood may be present and this will be a further factor in the stimulation of the centre.

2. There is evidence that the slow circulation rate of heart failure which results in the stimulus at the centre to produce increased ventilation, results at the same time in reduction of vital capacity by engorgement of the pulmonary circulation and in fatigue of the centre so that the need for increased ventilation cannot be met without consciousness of the respiratory movements. This produces the distress of dyspnœa.

3. The clinical features and experimental observations on orthopnœa, periodic breathing, and paroxysmal dyspnœa (or cardiac asthma) are compatible with these conceptions of cardiac dyspnœa.

4. Dyspnœa may be a dangerous reaction, and in certain cases the direct treatment of it by means of morphia is indicated but full use of this action of morphia cannot be attained until practical methods of administering oxygen are further developed.

5. The fundamental cause of cardiac dyspnœa is inefficiency of the myocardium.

In conclusion I should like to express my indebtedness to the skill and cooperation of my colleagues, whose work has given me the opportunity of carrying out this analysis and discussion.

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SANOCRYSIN IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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Following Prof Mollgaard's discovery three years ago,[1] that sanocrysin, when given sufficiently early and in adequate amount, exercises a strikingly beneficial effect on tuberculous lesions in calves, there has been a large amount of work in the clinical field, and although the results of this have not been uniform, there is much evidence to show that in this salt of gold we have a drug with a definitely specific action on the tuberculous process

The great majority of cases on which this article is based had failed to give satisfactory response to sanatorium treatment, the prognosis was at best doubtful and in several cases definitely bad. It is too early to say how far the ultimate prognosis has been affected by the sanocrysin treatment, but in a number of cases febrile, sputum positive, more or less bedridden patients have changed during or following the course of injections into afebrile, sputum negative, ambulant cases After a certain number of weeks or months there is a tendency for the sputum to become positive again, and, less commonly, for the temperature to rise; a second course of injections usually results in these symptoms disappearing again

Selection of Cases

Since fibrous tissue hampers the action of a drug circulating in the blood stream, cases of long-standing phthisis with cavities and much fibrosis cannot be expected to do as well as those in which the disease is early and the tuberculous infiltration soft and in close contact with the blood capillaries The first cases chosen were, therefore, chiefly of the latter type As some of these gave strikingly good results there was a general demand for the treatment among their fellow patients, and recently a number of less suitable cases have been treated and we have found that even in disease of many years' duration marked improvement may occur In two cases in the last stages of cachexia and emaciation sanocrysin was tried at the request of the patient and relatives, but it was not found possible in either case to maintain a sufficient dosage to have any lasting effect The most severe case to have a good result differed from these in that he was gaining weight at the time sanocrysin was started, he lost seven pounds during the following six weeks This question of emaciation is most important in the selection of cases as, unless the patient is thought fit to stand the loss of several pounds, it will probably be found necessary to abandon treatment with the disease still active and the patient even more emaciated than at the beginning of treatment

Artificial Pneumothorax and Sanocrysin

As Gravesen has already observed,[2] there are many cases in which collapse treatment may with advantage be combined with sanocrysin A typical example of this was seen in a case in which recent disease in the uncollapsed lung became inactive after a few weeks' gold treatment In another case a pneumothorax which had successfully controlled activity for some months obliterated gradually after pleural effusion The first stage of this process resulted in the re-expansion of the whole lung with the exception of the apex; activity, manifested by fever, positive sputum, and coarse râles returned, but was temporarily checked by a course of sanocrysin Several weeks later the apex, which contained a large cavity, re-expanded and the symptoms of activity returned, but disappeared again with a second course of gold This patient has been free from active symptoms for three months.

Dosage

No hard-and-fast rules can be laid down as to the dosage Careful individualisation will give better results than any rigid system In the early days of sanocrysin large doses at short intervals were given from the beginning of treatment[3]; severe shock and sometimes fatal reactions resulted and the method was looked on by many as a "kill or cure" treatment Our experience suggests that equally good results can be obtained without exposing the patient to such dangers The aim of the treatment should be to obtain an effective concentration of the drug in the body without, in so doing, producing reactions so severe as to endanger life or reduce the resistance to the disease In our cases the initial dose has varied between 0 025 g in an emaciated subject with advanced disease and 0 35 g in an ambulant case In the former it was 40 days before a dose of 0 75 g. could be given, while in the latter 0 6 g was given on the second day and 0 85 g on the fifth As a general rule, 0 85 g to 1 g has been considered a full dose for adult males In females it is often better not to give more than 0 75 to 0 85 g

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Class I.—*Improvement Considered Due in Part at Least to Sanocrysin.*

Case No	Before sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum.	After first course of sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum	Subsequent history. Degrees of temp (average) A.M.	P.M.	Sputum.	Remarks
1	98·4 In bed.	100·2	T B –	97·6 Wk. 2 m	98·7	T B – Soon nil.	97·7	98·7	T.B +	Wk. 6 m
2	99·2 In bed.	101·0	T B –	97·6	98·4	T B –	97·6	98·2	None	Wk 8 m Skating
3	98·2 In bed.	99·6	None	97·3 Wk. 2 m	98·3	None	97·8	98·3	None	Wk. 6 m
4	99·5 In bed.	99·7	T B +	97·8 Wk. 2 m	98·3	T B –	97·2	98·2	T B – for a time Now –	Right arterial pneumothorax Sanocrysin given for recent spread in left lung Wk. 6 m
5	99·2 In bed.	101·2	T B –	99·0 In bed.	100·0	None	—	—	—	Right spontaneous pneumothorax. Bronchial fistula Severe disease in left lung
6	97·3	98·4	T B –	97·1	98·3	T B –	97·2	98·2	None	Wk. 10 m
7	99·0 Up; not wk.	99·4	T B –	98·2 Wk. 1 m	98·4	T B –	—	—	T B –	—
8	98·2 In bed.	99·0	T B –	98·2 Wk. 2 m.	98·6	T B –	98·0	98·3	Practically none.	At home, much improved Wk. 6 m T B larynx healed.
9	98·0 In bed	99·2	T B –	97·8 Wk. 2 m	98·4	T B –	97·8	98·4	T B + for a time Now –	Wk. 6 m
10	98·8	99·8	T B –	98·8	99·4	T B –	97·8	98·6	None	Wk 2 m
11	99·0	100·0	T B – for 8 yrs	98·2 Wk. 2 m	98·4	T B –	98·0	98·6	T B –	Sputum T B – for short time before second course of sanocrysin.
12	97·0 Wk. 6 m	98·4	T B –	97·0 Wk. 10 m	98·1	T B –	—	—	—	At work since September
13	98·8	100·2	T B –	98·3 Wk. 1 m	99·0	T B –	—	—	T B – for a time Now –.	—
14	98·0 In bed 12 mths	100·0	T B –	98·4 In bed.	99·3	T B –	—	—	—	—
15	98·0 In bed.	99·0	T B +	98·0	99·0	T B –	98·0	99·0	T B –, then no sputum.	Left arterial pneumothorax. Lung expanded after pleural effusion
16	98·8 In bed.	100·0	T B +	98·0 Up	99·0	T B –	98·0	98·8	T B – for a time Now –	—
17	98·7 In bed.	99·2	T B –	98·7 In bed.	99·2	T B –	98·0	98·6	T.B –	At home improved. Recently had second course Wk. 4–5 m

Class II.—*Improved, but Doubtful if Due to Sanocrysin.*

Case No	Before sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum.	After first course of sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum	Subsequent history. Degrees of temp (average) A.M.	P.M.	Sputum.	Remarks
18	97·7 Wk. 2 m	98·6	T B –	97·7 Wk. 2 m	98·3	T B +	—	—	—	At work since July, 1926
19	98·8 In bed.	99·7	None	98·4 Up not wk.	99·2	None	—	—	None	At home, improved. Recently had hysterectomy
20	99·8 In bed.	100·0	T B –	99·0 In bed.	99·5	T B –	—	—	—	Wk. until recently, when had phrenic avulsion.
21	98·4 In bed.	99·5	T B –	98·6 In bed.	99·4	T B –	—	—	—	At home. T B –
22	97·4 Wk.	98·4	T B +	97·6	98·4	T B –	97·6	98·4	T B –	—
23	98·8 In bed.	100·0	T B –	98·2	99·2	T B –	98·2	99·2	None	—
24	98·2 In bed	99·5	None	97·4 Wk. 4 m.	98·3	None	98·0	98·4	None	Wk 6 m
25	97·8 Wk. 1 m	99·3	None	97·4 Wk. 2 m	98·6	None	97·4	98·4	None.	Wk. 6 m

Class III.—*Not Improved*

Case No	Before sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum.	After first course of sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum	Subsequent history. Degrees of temp (average) A.M.	P.M.	Sputum.	Remarks
26	98·2 In bed.	98·8	T B –	98·0	98·8	T B –	98·0 In bed	98·8	T B –	Set back owing to *B coli* cystitis and pyelitis 2 months after sanocrysin.
27	97·0 In bed (Oral temp.)	98·0	T B –	97·2 In bed (Oral temp.)	98·0	T B –	—	—	—	Case of T B lung and spinal caries Started T B epididymitis soon after sanocrysin.

Class IV.—*Died*

Case No	Before sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum.	After first course of sanocrysin. Degrees of temp (average) A.M.	P.M.	Sputum	Subsequent history. Degrees of temp (average) A.M.	P.M.	Sputum.	Remarks
28	100·0 In bed.	101·2 –104·0	T B –	—	—	—	—	—	—	Widespread disease and cavities both lungs Died August 2nd, 1926 Total dose 0·3 g
29	98·6 In bed	100·6	T B +	—	—	—	—	—	—	Died Oct 3rd 1926 Pneumothorax right side active disease with cavity left lung
30	99·0 In bed	100·0	T B –	—	—	—	—	—	—	Died Jan 1st, 1927

Wk. = Walking m = miles.

After a moderate reaction—i e, a rise in temperature of 1°–2° F—the dose should not be increased at the next injection After a severe reaction temperature rise of 3°–4°, or when there is marked albuminuria or a rash, the interval should be increased and the dose diminished The question of dosage is complicated by the fact that although the tolerance to the drug tends to increase, this may be more than counterbalanced by cumulative action as excretion is slow

The blood sedimentation test is of some value in confirming the clinical impression of the degree of toxæmia The rate of sedimentation tends to become more rapid during treatment, but subsequently rises to more normal figures. Rapid sedimentation, and particularly a sudden increase in the rate of sedimentation, is an indication for caution In severe cases it is often better to give doses of 0 1 g daily,[4] or 0·25 g on alternate days rather than to attempt to give larger doses at longer intervals

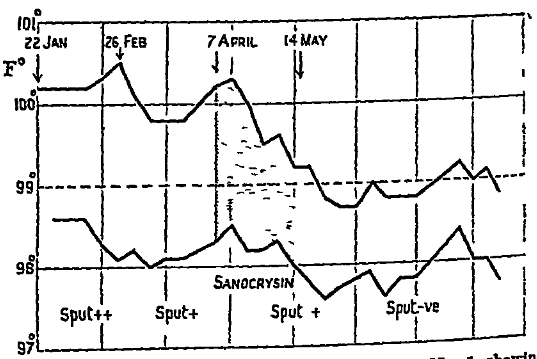
It has been usual to give a total of 6–8 g as a first course, and then to wait about three months before giving a second course of 4–5 g A more rational procedure is to continue to give the maximum dose until the patient has ceased to react Mollgaard has shown that healthy animals show no temperature reaction, even with large doses of sanocrysin[5] In treating tuberculous subjects, the most severe reactions usually occur with the first few doses or with the first full dose, subsequently they tend to diminish and finally to disappear. The total amount of gold salt which has to be given before the patient's temperature ceases to be affected has varied in our cases from 2 or 3 g to more than 10 g During the second course temperature reactions are rare, and 4 to 5 g seems to be a sufficient amount in the majority of cases

Reactions

The most dreaded reaction of sanocrysin treatment is *shock.* This is similar to the tuberculin shock produced experimentally on animals, and is characterised by albuminuria, subnormal temperature, and weak pulse This reaction has not been observed in any of our cases; it is true that the majority have had transitory albuminuria at some time during treatment, this has never lasted more than a few days It has always been looked on as a signal of possible danger, and no further injection has been given until the last trace has disappeared; the dose is never increased for the next injection, nor is the interval shortened As observed by Faber,[6] an *early* and a *late* type of albuminuria have to be distinguished in sanocrysin treatment. The former never occurs in non-tuberculous animals treated with sanocrysin, and its duration may be shortened by injections of antituberculous serum Late albuminuria, on the other hand, runs a much more protracted course and is of quite unknown origin Early albuminuria was generally considered to be toxic in origin and closely associated with shock, but recent work[7] has shown that the majority of human cases presenting this symptom have no tendency to shock, and that serum injections have no effect on the duration of the condition Frandsen[8] has recently studied the effect of sanocrysin injections on the kidneys of healthy rabbits He finds that amounts considerably in excess of the largest therapeutic dose can be given repeatedly without the least damage to the kidney. Only when very large doses are given over a very long period are changes reminiscent of arterio-sclerotic kidney produced This is in sharp contrast not only with the changes observed in poisoning with other heavy metals, but also with the post mortem findings in patients dying from shock in sanocrysin treatment in which parenchymatous changes are invariable The late protracted type of albuminuria has never been observed in our cases

Rise of temperature has been constant during the early stages of treatment. By beginning with small doses and increasing gradually we have been able to avoid severe degrees of hyperpyrexia Temperatures of 103° or more have only been observed in two or three cases in which severe skin reactions were also present These temperature reactions, like the albuminuria, may be divided into an early and a late type In the former the rise of temperature tends to be sudden and reaches its maximum within a few hours of the injection; it is usually lower on the following day, but not infrequently may be higher on the second night, after which it comes down by lysis during the next few days The late temperature reactions are much less common and usually occur five to seven days after the injection, the rise is more gradual than in the early type and the temperature remains above normal for a week or ten days Both types of temperature reaction are associated with an increase in the amount of sputum and auscultation over the lesion usually shows an increase in the moist sounds present In three cases the late temperature reaction was associated with the reappearance of T B in the sputum which had become negative during the earlier stages of treatment

CHART 1



Rectal temperature record (Fahrenheit) of Case No 1, showing the weekly average reading of morning temperature (bottom line) and evening temperature (top line) The vertical lines mark four-weekly periods

Skin Reactions.

These are among the most serious inconveniences of treatment Severe morbilliform rashes followed by desquamation or even weeping eczema and associated with high temperature have only occurred in five of our cases This complication necessitated a break of several weeks in the treatment Slight skin reactions in the form of scattered papules or localised rashes on the elbows or knees have been more frequent It is impossible to tell at first whether these rashes are trivial and transitory or whether they are the first signs of a severe reaction, it is therefore advisable to proceed with great caution as soon as a skin reaction appears Ulcerative stomatitis has been noted in five cases and necessitated an interval of 10 to 14 days as the amount of ulceration immediately increases even if a reduced dose is given after the usual interval

Nausea and vomiting and occasionally diarrhoea are complications which tend to occur towards the end of treatment when large doses of gold are given A metallic taste is often noticed during or immediately after an injection, this may be closely followed by nausea and vomiting

Loss in weight is a very variable phenomenon; some patients actually gain during the course of treatment while in others as much as a stone has been lost in two months Considerable light has been thrown on the nature of the reactions observed in sanocrysin treatment by the recent work of Madsen and Morch in experimental tuberculosis[9] These investigations show that when an attenuated culture is used for infection the disease may be healed by means of gradually increasing doses of sanocrysin, should large doses be given early in treatment violent reactions and fatal shock result Virulent strains, on the other hand, require to be treated with large doses from the start, severe reactions do not occur, yet the disease is arrested in the great majority of cases

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[4] L S T Burrell Sanocrysin in the Treatment of Pulmonary Tuberculosis, Tubercle, July, 1926

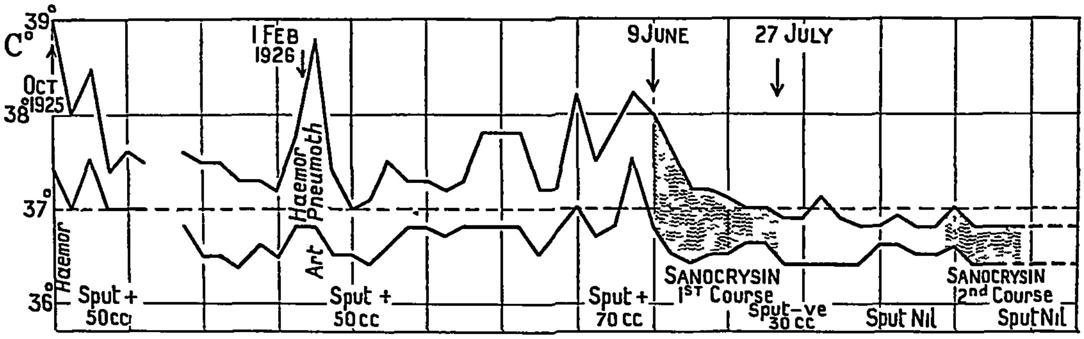
[5] Mollgaard Loc cit

[6] Faber Traitement de la Phthisis pulmonaire par le Sanocrysin, Acta Tub Scand, 1925, vol i, Fasc 1

[7] Mollgaard Acta Tub Scand, vol ii, Fasc 3

[8] Frandsen The Action of Sanocrysin on Healthy Kidneys in Rabbits, Acta Tub Scand, 1926, vol ii, Fasc 3

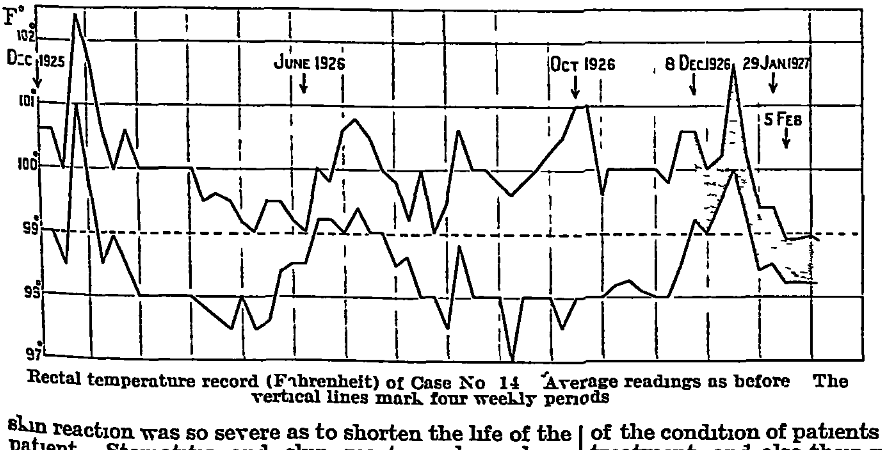
CHART 2



Mouth temperature record (Centigrade) of Case No 2 Average readings as before The vertical lines mark four weekly periods

We have not had the opportunity of treating a really virulent infection with sanocrysin, but our observations seem, on the whole, to accord with the animal experiments of Madsen and Morch It is, of course, very difficult to form an accurate opinion on the virulence of the strain affecting any particular patient since the clinical picture observed is the resultant of the virulence of the bacillus and the resistance of the body We have, none the less, noted that patients who appear to be thoroughly overcome by the disease to which they offer little resistance rarely have severe reactions An exception to this rule is seen in the case in whom the skin reaction was so severe as to shorten the life of the patient Stomatitis and skin reactions have been relatively more frequent in patients with good powers of resistance Severe skin reactions have never been observed in a second course of treatment, but stomatitis has been more frequent than in a first course

CHART 3



Rectal temperature record (Fahrenheit) of Case No 14 Average readings as before The vertical lines mark four weekly periods

Results

Every aspect of medicine has its difficulties in diagnosis, prognosis, and treatment, but none of these involves such problems as the decision as to whether a certain treatment is having a beneficial effect on a patient or whether the improvement observed is unconnected with the treatment or even in spite of it In no disease could this problem be more difficult than in tuberculosis in which improvement, temporary or permanent, occurs in the great majority of cases treated in a sanatorium The following table is therefore given with all reserve and with the knowledge that the figures given cannot pretend to scientific accuracy but merely represent our clinical judgment on the case involved In all 37 cases have been treated with sanocrysin; seven of these are not included in the following table because they are still under treatment, because the diagnosis of tuberculosis is uncertain, or because (in one case) treatment was soon abandoned owing to the neurasthenic condition of the patient

Class		
1	Improvement considered to be due at least partly to sanocrysin	17
2	Improved but doubtful if due to sanocrysin	8
3	Not improved	2
4	Died	3
		30

The 17 cases in which the improvement is attributed to sanocrysin include 14 in which the disease had reached the stage of cavity formation

In a number of these cases the improvement in the physical signs was so rapid that it is difficult to believe that it could have been effected without the help of sanocrysin This improvement was confirmed in several cases by X ray examination which showed the disappearance of soft infiltration in a relatively short time Fibrous tissue appears to be little affected

In the tabular statement an attempt is made to give some impression of the condition of patients before and after sanocrysin treatment, and also their subsequent history It will be seen from the table that out of 25 cases with tubercle bacilli in the sputum before treatment 19 became negative during the course of injections

Illustrative Cases

CASE 1—Male aged 28 Hæmoptysis two and a half years ago, but continued work Sputum T B plus, April, 1925 In bed almost continuously since then Arrived Montana Jan 22nd, 1926 Signs of severe and widespread disease both lungs with several cavities Much emaciation. Blood pressure, systolic, 80, diastolic, 55 Much sputum, T B plus Temperature shown on Chart 1 6 85 g gold given between April 7th and May 14th, 1926 Temperature normal, sputum negative, and much reduced in amount. Up all day and walking six miles by June Sputum again positive in July, but second course of gold followed by negative sputum Went home for two months, but cough and sputum increased After third course temperature again normal, but still some sputum T B plus Blood pressure, 120/90

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[9] Madsen and Morch Traitement par le Sanocrysin de la Tuberculose Expérimentale, Acta Tub Scand, vol. ii, Fasc 2

CASE 2 —Female aged 23 Dry pleurisy June, 1925 November, 1925, cough, sputum T B plus Large cavity *right upper lobe January, 1926*, large hæmoptysis, for which right artificial pneumothorax induced Temporary improvement, but pneumothorax obliterated following pleural effusion, sputum T B plus Sanocrysin started June, 1926, 6 5 g given. Temperature rapidly came down to normal (Chart 2) Sputum negative, five weeks later no sputum Second course of sanocrysin ten weeks after first Now very well Gained 25 lb

CASE 30.—Female aged 22 Caseous pneumonia left upper lobe June, 1925 Arrived Montana October, 1926 Physical signs and X ray showed left upper lobe replaced by cavity, lower lobe extensively diseased Slight infiltration spreading *horizontally from right hilum* Bad prognosis given, but left artificial pneumothorax started Nov 24th Temperature came down from 100°–102° to almost normal during following week, but rose again *to 99° morning and 100° evening* a few days later Signs in right lung more definite Sanocrysin (0 1 g) started Dec 3rd Temperature normal from Dec 17th to 21st, and sputum almost stopped Dec 22nd beginning of rash (after 0 6 g gold) which took the form of a weeping eczema over the whole body Temperature 102° to 103 6° *Injections of Mollgaard's serum without effect* Death Jan 1st, 1927

CASE 14 —Female aged 39 Arrived Montana Dec 20th, 1925 Left upper lobe replaced by cavity, extensive infiltration *lower lobe* and scattered disease in right lung Bad prognosis given, but absolute rest, mostly out of doors on wheeled bed, for one year caused slight improvement on the whole, but still febrile and sputum abundant Sanocrysin started Dec 9th, 1926, small doses given, 0 1 g , increasing gradually to 0 6 g *Temperature came down* almost to normal (Chart 3), sputum much diminished, and great improvement general condition

Conclusions

1 The dangers of sanocrysin treatment have been greatly exaggerated With careful individualisation, gradually increasing doses and attention to reactions the treatment should only very rarely cause harm

2 The large proportion of T B positive cases which became negative (if only temporarily) and certain cases with fever of long duration which became afebrile point to a specific effect of the drug on the tuberculous process

3 Whereas sanocrysin may be of benefit in any case which has not reached an advanced stage of *emaciation*, the likelihood of benefit increases as the case approaches the early and pneumonic type and diminishes with the long-standing fibrotic type

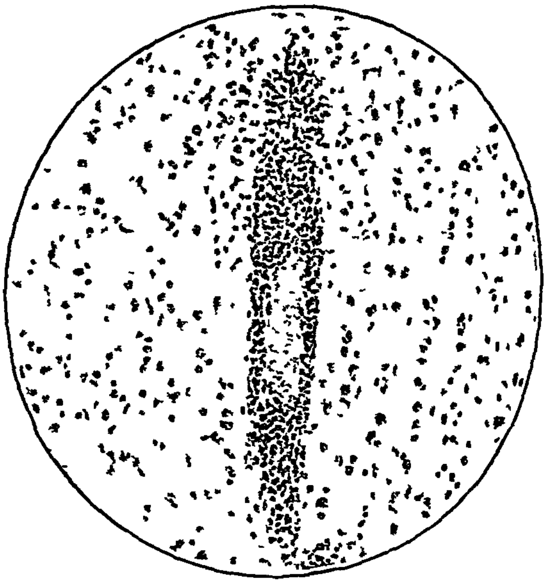
4 The animal experiments of Madsen and Morch suggest that the clinician would be helped considerably if he knew the virulence of the strain of tubercle bacillus affecting each patient. There is a need for close cooperation between physician and pathologist on this point

5 Although it is probable that sanocrysin has a specific action on tuberculosis, it is still far from being a " cure " for the disease The benefit derived is, in a number of cases, only temporary The striking success obtained in certain cases in the early days of sanocrysin *treatment with the use of large and often* dangerous doses led to the belief that it was desirable *to attempt to* sterilise the tissues completely in the course of a few weeks Similar claims were *made by* Ehrlich *in the early days* of salvarsan treatment and the *following* reflexion seems natural *If it is now* found that long specific treatment is necessary, even in early cases of syphilis, surely it is too much to expect that tuberculosis will be easier to cure and that a shorter time will be sufficient Mollgaard's calves were treated within about a fortnight of infection and gave results *comparable* with those obtained in the arsenical treatment of primary syphilis The fact that we cannot get as good results in human cases of much longer standing gives no occasion for pessimism, but encourages us to direct our attention to evolving a more satisfactory system of doses which will enable us to derive more benefit from a drug which has already given favourable results

EXPERIMENTAL PRODUCTION OF THE MENINGO-ENCEPHALITIS OF MUMPS

BY M H GORDON, D M OXF , F R S ,
CONSULTING BACTERIOLOGIST TO ST BARTHOLOMEW'S HOSPITAL

THE interesting case of mumps with symptoms of encephalitis recently described in THE LANCET (March 12th) by Dr Harry Bedingfield has reminded me of an example of this condition which was produced in course of an experimental study of the virus of mumps in 1913 The primary object of the investigation in question was to determine whether any of the well-known nervous complications of mumps could be produced in monkeys *by the* intracerebral injection of a bacteria-free filtrate obtained by passing a gargle from an ordinary uncomplicated case of mumps through the Berkefeld filter The results of this experimental inquiry were described in a special report to the Local Government Board (New Series No 96) published in 1914 Out of some 10 monkeys injected in this way four developed symptoms of nervous *disturbance* and died in from 3–9 days, and sections of the central nervous system showed in all these cases pronounced degenerative changes in the *nerve*-cells Infiltrative lesions, however, were conspicuous by their absence In the case of one of these monkeys that *developed* meningitic symptoms after intracerebral inoculation with a filtered gargle in the manner referred to, however, further sections were made of *the brain after* the report had been issued, and at *one place in* the cortex a spot was found where definite infiltrative evidence of encephalitis was present *The section* showing this lesion was photographed at *the time* by Dr Albert Norman for me, and I was reserving these photographs until I had been able to *carry out a further* study of neurotropic viruses in general, *and of* mumps amongst others The case published by Dr Bedingfield, however, *suggests that this* experimental evidence on the subject of mumps encephalitis may possibly have some interest for clinical observers at the present time, and *therefore I submit* it for what it is worth



A blood-vessel in the cerebral cortex of the monkey, showing perivascular infiltration Magnification × 200

On Jan 18th, 1913, a *M Cynomolgus* monkey *(No 8)* was inoculated intracerebrally with 1 5 c cm and intraperitoneally with 5 c cm of *the filtrate* that had been obtained by passing 100 c cm of saline that had been *gargled* by a patient on the second day of *mumps* through an ordinary Berkefeld filter All the usual precautions necessary *in this* work were taken, and the *filtrate* was *demontrated to be free* of ordinary bacteria. Three days after injection this monkey became quiet, and on the fifth day the symptoms of headache becoming prominent the animal was placed under a general anæsthetic and lumbar punctured. The cerebro-spinal fluid was under increased pressure—some of it spurted out and was lost, but 2–3 c.cm. were collected. This cerebro-spinal fluid was slightly turbid and contained 1500 white cells per cubic millimetre, of which 82 per cent. were lymphocytes, 12 per cent. polymorphonuclears, and 6 per cent. endothelial cells. No bacteria were found in films of it and cultures remained sterile. The monkey's symptoms were much relieved by the lumbar puncture, and though not as lively as usual it was so much better during the next two days that its recovery seemed possible. Later, however, it relapsed, got progressively weaker, and died on the ninth day.

Post-mortem.—No definite naked-eye changes could be made out except for some patches of congestion in the liver and a pronounced degree of fatty change in the cells of the convoluted tubules of the kidney. No pus was found in the central nervous system which appeared to be merely congested. Films of the cerebro-spinal fluid showed a majority of lymphocytes, but no bacteria, and cultures in broth and agar with blood enrichment from the cerebro-spinal fluid and from the heart blood remained sterile. Sections of the cord showed a variable degree—never very pronounced—of infiltration of the pia-arachnoid with lymphocytes. In both cord and cortex there was well-marked hyperæmia, leading occasionally to rupture of the capillaries and small extravasations of blood. A proportion of the nerve-cells both of the cortex and also of the anterior horn cells of the cord showed pronounced degenerative changes.

Discussion

A coloured illustration was attached to the report showing the appearance of the anterior horn cells of the cord in this monkey. A search for perivascular infiltration or for foci of inflammatory cells in the substance of the central nervous system was unsuccessful at the time that the report was made. Subsequently, however, some further sections were made of remaining pieces of the cortex, and at one spot the familiar infiltrative changes of encephalitis were found—namely, perivascular infiltration and also foci of leucocytes here and there in the grey matter. The accompanying microphotograph seems to place the presence of encephalitis beyond reasonable doubt. This particular monkey, therefore, after inoculation with the filtrate of a gargle from an ordinary case of mumps without nervous manifestations developed a condition of acute meningo-encephalitis, to which it succumbed on the ninth day.

Clinical and Laboratory Notes.

A CASE OF
INJURY TO THE PLACENTA
DURING KRAUSE'S METHOD OF INDUCTION

BY J. HARGREAVES ROBINSON, L.A.H. DUB.,
L.M.R.C.P. IREL.,
HON. SURGEON TO THE ROYAL MATERNITY CHARITY, LONDON;
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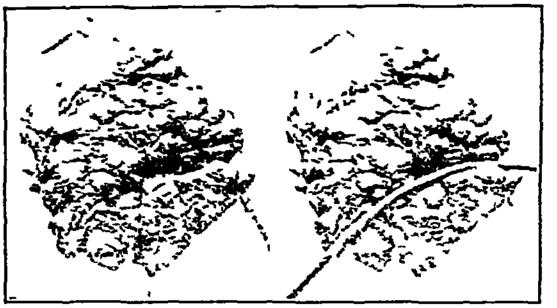
THIS note relates to the second confinement of a woman the subject of pelvic contraction.

Her first child was stillborn after a difficult instrumental delivery, and in the second pregnancy I advised induction, and at the time chosen passed a bougie into the uterus. No obstruction seemed to be encountered as the bougie was introduced, and the only evidence that anything was wrong was a severe hæmorrhage, arterial in colour, ejected forcibly to a distance of about five feet. I withdrew the bougie, ruptured the membranes, and quickly plugged the cervix and vagina with a large and very tight tampon. A binder was immediately applied, and after once encompassing the abdomen, was twisted two or three times to act as a tourniquet, the two ends of the binder being again passed under and over the patient and securely fastened.

The patient was pulseless, and I thought that the bougie had abducted a low-lying placenta. She was returned to the ward and the foot of the bed was raised. Her pulse and colour slowly returned and shortly afterwards the fœtal heart was audible. I therefore concluded that there had been injury to, without complete abruption of, the placenta. Labour pains soon commenced, and the tampon was removed when the head became fixed. The fœtal heart was frequently examined, and preparations were made to meet any conditions that might arise. Thirty-two hours elapsed from the time of the placental hæmorrhage to the birth of a living child which has survived; when the child was born the uterus was more firmly held than is usual, and it was massaged when occasionally it showed a tendency to relax. The cord continued to pulsate for a longer period than is usual.



The placenta, showing the tract of the bougie.

When the placenta was expressed, it showed the track of the bougie, which had almost severed it, as shown in the accompanying photograph. The bougie used was of the type made for the purpose. A large quantity of clots were expressed from the uterus, and when it was empty pituitrin and ergotinin were given by parenchymatous injection. The infant was born in the membranes, completely and symmetrically separated at the margin of the placenta. The mother had a transient syncopal attack when the uterus was empty. The puerperium was normal.

A CASE OF ABDOMINAL PREGNANCY
WITH UNUSUAL FEATURES

BY JOSEPH SILVERSTONE, M.R.C.S. ENG.,
FORMER HOUSE SURGEON, WESTMINSTER HOSPITAL; HOUSE
SURGEON AT THE NORTH STAFFORDSHIRE ROYAL
INFIRMARY, STOKE-ON-TRENT

THE following case appears to be worthy of record.

A woman, aged 32, was admitted to Westminster Hospital on August 13th, 1926, when she had had amenorrhœa for two months. The history was that she had a miscarriage ten days before admission. The doctor then in attendance stated that he had "got it all away," and that he had cleared out the uterus. He showed her the afterbirth. Two days later the patient experienced a pain in her left side, and felt a lump in this region about the size of an egg. The lump increased in size and the pain became worse. A hot water-bottle caused both to disperse.

On admission she had a temperature of 99.2° F., and the pulse-rate was 98. She was very nervous, and complained of pains all over the abdomen, which was very tender. Some slight rigidity was detected in the left iliac region. There was no vaginal discharge and there was a suspicion of a fullness in the left fornix. The urine contained pus, and there was pain on micturition.

The condition settled down, and the patient was quite comfortable for nine days. On August 22nd, however, she felt faint and she began to vomit. She became very pale, sweated profusely, and was very collapsed. The pulse-rate rose to 130, and the pulse was very feeble. There was also a slight blood-stained vaginal discharge. The diagnosis of ruptured ectopic gestation was made, and an operation was performed by Mr. G. T. Mullally, while simultaneously Mr. C. Price Thomas carried out a blood transfusion. The left tube was found to be ruptured in almost the whole of its length, and was removed. No trace of the fœtus was found at the operation.

The patient recovered from the operation and did very wel for a fortnight. Then suddenly she began to vomit, and her pulse-rate rose to 130; it became apparent that she had acute intestinal obstruction.

She was operated upon by Mr. C. Price Thomas on Sept. 6th, and it was found that a loop of small intestine was obstructed by a band extending across the brim of the true pelvis. This was divided, and the bowel freed. The left side of the abdomen was about to be examined when a fœtus, about one and three-quarters of an inch in length shot out from under the left edge of the wound. A small umbilical cord was present, which led down to a definitely formed placenta. The latter was found to be attached to coils of small intestine, descending colon, and omentum. It was separated from its attachments, the attached omentum being removed, and the raw surfaces on the bowel were over-sewn.

The patient did very well and completely recovered.

The sequence of events may be interpreted as follows. The patient had an ectopic tubal gestation from the onset, and the doctor cleared away a decidual cast. When admitted she had a slight hæmorrhage from the Fallopian tube. This was followed, 14 days later, by a complete rupture of the tube, which necessitated operation, the fœtus at this stage being shot out into the general abdominal cavity, where it continued to develop as a secondary abdominal pregnancy.

I am indebted to Mr. G. T. Mullally for his permission to publish this case.

A CASE OF ERYTHEMA NODOSUM FOLLOWING SMALL-POX.

BY WILLIAM L. TULLIS, M.D., D.P.H. ST. AND.,

ASSISTANT MEDICAL OFFICER OF HEALTH, MIDDLESBROUGH.

THE following case presents several features of unusual interest.

The patient, an unvaccinated girl of 6 years, was admitted to Hemlington Hospital on Feb. 1st, 1927, suffering from small-pox. She came from an outlying area and inquiry elicited the fact that the child's eruption had first made itself manifest on Jan. 20th. Six days earlier she had been suffering from malaise, headache, and vague pains. Examination on admission to hospital revealed a rash centrifugal in distribution. The majority of the spots had assumed the form of crusts, amber bead seeds being found especially on the skin of the forearms and ankles.

On Feb. 22nd 10 or 12 swellings, some about the size of a large pea, and others the size of a hazel-nut, made their appearance over the extensor aspect of both legs. Pain and swelling were simultaneous. Some of the nodules were circular, others oval in shape. They were all exquisitely tender on pressure, and involved the subcutaneous tissue as well as the skin. At first bright red in colour they rapidly assumed a dusky hue, and in four days the legs appeared normal. Œdema was not marked.

There was no elevation of temperature, and the pulse and respiration-rate were unaltered. The action of the bowels was normal. Careful examination of the child failed to reveal any evidence of rheumatism. There were no joint pains, no sore-throat, and the heart was normal. The child's general condition appeared good and there was no sign of either tuberculosis or syphilis. The Wassermann reaction was not taken however.

The patient was given salicylate of soda 15 gr. daily, and the lower limbs were protected by cotton-wool. She was confined to bed during her stay in hospital which terminated on March 1st.

This is the first case of erythema nodosum that I have encountered in a series of 1900 cases of small-pox. The chief points of interest are (1) the age of the patient, and (2) the association of the condition with variola.

INDUSTRIAL PSYCHOLOGY.—The annual report of the National Institute for Industrial Psychology was presented recently to the constituency and contains a summary of the active work undertaken, and undertaken to an extent which has justified a considerable increase in the staff of the Institute. The claims of the work and the appeal fund for its support deserve medical endorsement. Expert assistance has been given by the Institute, for example, to the Industrial Fatigue Research Board in the study of problems submitted by the War Office and the Prison Commission, while many children are now examined and advised according to the vocational guidance laid down by the Institute. Inquiries have been made into such varying matters as accidents in mills, the individual differences of workers in their sensibility to colours, the effects of menstruation upon mental and muscular efficiency, and the influence of ultra-violet rays on factory workers. The work of the committees, the character of the investigations in hand, and the arrangements for spreading the activities of the Institute justify the Council in pressing the Appeal Fund upon public attention.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF COMPARATIVE MEDICINE.

AT a meeting of this Section held on March 16th, at which SIR D'ARCY POWER, President of the Section, occupied the chair, Prof. H. MOLLGAARD, of Copenhagen, read a paper on

Chemotherapy with Special Reference to Heavy Metals.

The conception of specific therapy now commonly held was, he said, that it was the same as immuno therapy—in other words, that the therapeutic agent was inherent in the metabolism of the organism itself. No doubt in this respect the immunobiological powers of the organism represented the ideal form of therapy. In many instances—and especially in the case of certain diseases—the action of these powers did not bring about a cure, even when backed up by general medical treatment with vaccines or serums. This failure arose from one of two reasons: either the patient could not produce the agents in sufficient quantity, or their action on the parasite was prevented. In these cases the clinician was faced with the necessity of effecting an alteration in the dominating pathological conditions of the infected organism. This he did either by removing the causes which were preventing the exercise of the natural powers or by concentrating on the destruction of the parasite itself. Since the pioneer work of Ehrlich, scientific chemotherapy had taken account of both these possibilities. The object of research on chemotherapeutic lines was to discover substances which, directly or indirectly, inflicted the greatest possible harm on the parasite with the least injury to the host. It could not be said that any substance had as yet been produced having any remarkable effect on invading micro-organisms without injuring the patient, and our existing knowledge of chemical constitution and pharmacological action was too fragmentary to open up with certainty a way for the preparation of substances fulfilling this requirement. Experimental chemotherapy was therefore at present a series of approximations to the ideal therapy which was carried out by the organism itself, and Prof. Mollgaard thought this was likely to remain the position for some years. This was supported by the fact that the action of any substance now used was not limited strictly to a certain parasite. The effect of even the most approved chemotherapeutical substances seemed to be due to chemical affinities of a more general character, and the term "specific therapy" could be applied only with reservation.

Ehrlich's original conception, Prof. Mollgaard continued, was that the action of chemical substances on the living cell was subject to the existence in such substances of chemical groups or radicals which were susceptible of reaction with other chemical groups in the cell. This conception afforded a basis for current views on metabolic processes.

On the other hand, Ehrlich's conclusion that a parasite could not be killed in the organism by any chemical compound not having a special chemical affinity to its protoplasm was not valid. The substance was not simply introduced to the parasite in a watery solution; it was injected into the very complicated system of the animal body where it underwent chemical changes which might greatly alter its therapeutic effect. Experience seemed to show that chemical compounds might kill parasites in the organism not by reacting with them, but by stimulating the natural powers of immunity. This might prove important for the future development of the method, as it meant that the chemotherapeutist had to deal not only with the chemical reagent and the parasite, but also with the reacting tissue of the infected person C H Browning had happily expressed this when he said that chemotherapeutic substances reacted in coöperation with the tissue

Discussion

SIR **PERCIVAL HARTLEY** said the point which particularly interested him was that though sanocrysin had no effect on certain bacilli, yet if a different strain of those bacilli were used, the drug might have a demonstrable effect It would be of interest to learn more about the differentiation of strains. Did Prof Mollgaard mean differences in the human strain, or such differences as those between human, bovine, and avian types? He had had some experience of treating tuberculosis with sanocrysin, but had lacked the courage to employ large doses at the outset, as he wished to avoid the severe reactions to which they gave rise He thought it possible, however, that when the doses were so graded as to avoid reaction, the results might not be so good as those which apparently followed the larger doses

SIR **LEONARD ROGERS** said he had been reflecting on the parallelism between tuberculosis and leprosy in the matter of chemotherapy, and had come to the conclusion that what Prof Mollgaard had said might explain many of the observations made in treating leprosy. His own work on leprosy in Calcutta strongly supported the view that the reaction of the tissues following the invasion of the infecting organism destroyed a certain number of the micro-organisms, setting free antibodies which produced a gradual immunity. His aim had been to give not a large dose at the commencement to cause a severe reaction, but small intravenous injections of gynocardate of sodium, to induce a series of moderate reactions He related several cases of leprosy in which a surprisingly good result accrued One was that of an Indian patient who had an enormous thickening of the nose, patches the size of the palm of the hand on the back a third of an inch in thickness, and lesions elsewhere He was weak and ill, but at the end of two months after four small injections the lesions commenced to soften and absorb, and at the end of a year the nasal thickening and the patches on the back had disappeared, while in the tissue cut out no bacilli could be found

Prof. **MOLLGAARD**, in reply, said it had been found that the curative influence of sanocrysin depended on the strain, because that was the determining factor in the reaction When working with two different strains it was found that a cure was brought about in something like 75 per cent of cases, commencing with a dose of half a centigramme per kilo of body-weight, and working up to one and a half A sufficient amount of serum had to be employed; but the difficulty was that tuberculous animals were very sensitive to a heterogeneous serum In human beings it was necessary to refrain from large doses, trusting rather to a slow immunisation by successive and gradually increased amounts In cases in which large doses were not tolerated it was found that if quite small doses were given over a period of two or three months the eventual effect was good In the animal experiments carried out it was found that if a dose of two centigrammes per kilo of weight were used a very high percentage of recoveries occurred; if the dosage were reduced to 1 5 the recoveries dropped to about 60 per cent, and to 10 per cent if the dose was one centigramme per kilo Below one centigramme the effect was nil When the disease was severe and was extending rapidly, bigger doses could be employed without risk These larger doses were, however, contra-indicated in cases in which the disease had existed a year, and much fibrous tissue was present The first effect of sanocrysin was greatly to reduce the number of bacilli, but in a few months they would again increase, and thereafter however large the doses given the bacilli would not again be markedly reduced That, he assumed, was because the drug was unable to penetrate the fibrous walls, and the need, therefore was for a more soluble drug which would overcome this disability

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION

A MEETING of this Association was held on Feb 22nd at the British Medical Association House, Miss E **BOLTON**, the President, being in the chair.

Dr **ELIZABETH CASSON** read a paper on

Maternal Instinct in Medicine

She suggested that, while the immense strides made in neurology by the careful observations of facts and their subsequent study were freely acknowledged, the study of instinctive behaviour was considerably neglected in medicine Just as in the spinal cord, medulla, and midbrain, certain tracts are laid down in every individual, so certain definite instinctive responses will occur to set stimuli. Although it is not yet known exactly in what area of the brain these neurotic patterns are prepared yet it seems certain that they are as definitely laid to develop at various stages in the life of the animal as are the rubrospinal and pyramidal tracts A low-grade mental defective has no instinct for obtaining food, no curiosity, and no sense of fear, and has, in consequence, to be cared for as an infant all its life But the normal infant develops all these instinctive reactions at the right time, and as he grows up and during his whole life every activity depends on these same primitive instinctive reactions common to all members of the human race and, to a large extent, to all mammals To the modern psychologist the play of primitive instinctive reactions is as unceasing in every activity as is that of the nerves governing the limbs In every instance of behaviour normal or abnormal primitive instinct is demonstrable, and its recognition and study is necessary for diagnosis and subsequent treatment of any abnormal behaviour W McDougall has pointed out that certain unmistakable specific primary emotions can be observed in animals They are best classified according to the three great ends of the life force—self-preservation, race-preservation, and the herd instincts There are also certain other instinctive reactions with less specific ends There are *anger*, which is aroused when any instinct is thwarted; *curiosity*, with its impulse to investigate anything outside the previous experience of the subject, which forms the basis of all intellectual development and provides the impulse for all research; *joy*, felt when any instinct is gratified, and *grief*, when any instinct has failed in its gratification

The best exposition of parental instinct, said Dr. Casson, was given by W. McDougall, who points out that it is largely ignored by philosophers and psychologists, perhaps because "the instinct is in the main decidedly weaker in men than in women and in some perhaps altogether lacking." Discussing what was meant by the maternal instinct, she pointed out that there were three processes in every reaction occurring in the nervous system—stimulus, appreciation, and either action or a strong impulse to action Appreciation usually showed itself in what was called emotion The stimulus and the resulting action might vary according to the experience and mental make-up of the individual, but the emotion—for example, fear—was specific and unmistakable The emotion specific to the maternal instinct was a yearning to cherish There was unfortunately, no word for it, but it would be heard expressed by an inarticulate sound by the women in a cinema audience when a child suddenly appeared on the screen The mental patient, whether neurotic or psychotic, was, to a physician in the position of a child and provided a stimulus to the maternal instinct This might be the basis of the resentment felt by the doctor at the slightest interference with his or her treatment; who had not met anger in a parent, when someone suggested that she might bring up her child differently.

In suggesting the maternal instinct as a subject for research, there were a few points to be noticed—the age at which it appeared, its physical basis, its abnormalities, its relation to infanticide, its absence in advanced states of dementia Sometimes the return of affection and pity for fellow sufferers or nurses was the first sign of recovery in mental patients It was not easy to provide suitable stimuli for the maternal instinct in a mental hospital Babies were scarce and, except for fellow-patients, there was no one to mother Dogs and cats were the best substitutes Where they could not be persuaded to mother people, patients might be able to express the allied instinct of nest-building and home-making in crafts and other branches of occupational therapy.

An instinct might be abnormal in its unusual strength—for example, in cranks who keep 20 cats or pester their friends for subscriptions to antivivisection societies It might be aroused by an abnormal stimulus or express itself unusually—Mrs Jellaby was a notable example. A patient who has lost a baby, or has been nursing some other relative who has died, might thereafter lavish upon herself all the care and attention that she had been giving to the child. In some cases of the instinct being unsatisfied or being repressed, the patients lost all touch with reality They had babies in phantasy In a mental hospital one might find an old dement gently nursing a pillow. One of Dr Casson's patients, who had been aggressive, noisy, and abusive, had become a different person since she was given a doll

The outcome of Dr Casson's experience was that while it was not waste of time to investigate blood pressure and knee-jerks, it was equally worth while to investigate the primitive instincts If a doctor had been called in to discover early that the instincts of sleep and taking food were deranged in the puerperal cases later investigated so carefully at Broadmoor, then the babies would not have been killed by their insane mothers If investigations were made of the maternal instincts of disgruntled women patients much would be discovered The profession was willing to supply artificial limbs; it might equally well be their job to supply an artificial baby. The maternal instinct was quite as strong, if not stronger, than the mating instinct in most women, and the doctors must be on the look-out for its repression or wrong expression Some women realised their need and knew why they were fretting Others did not know what was wrong with them and did not realise they need the natural outlet of devoted service They were the kind who kept well by doing war-work and collapsed when they were left without it For them a cure must be found—they must be persuaded to adopt a child or guided into teaching, nursing, police, infant welfare work, management of working-class houses, or even into politics By this means a selfish, self-centred, miserable woman might sometimes be transformed into a happy, useful citizen

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH

ON March 8th Dr. HUNTER PATON read a paper on the

Normal Temperature and Pulse

Referring to the common belief that 98 4° F is the normal temperature of the body, he pointed out that this figure only represented the mean of continuous readings during the 24 hours Morning and evening records, as taken clinically, so rarely reached 98 4° in health that such a reading should be looked on with suspicion In his school work he recorded the temperature, night and morning, of any pupil who might possibly have been exposed to infection, and he isolated the child if 98 4° was reached, provided any other symptom of departure from health was detected By this plan he had often segregated cases of the exanthemata before they had given rise to infection, epidemic outbreaks being thus averted

In support of the view that a temperature of 98 4° was rarely recorded in health, Dr. Paton exhibited charts from 61 healthy girls whose morning and evening temperatures had been recorded for 16 days The temperatures had been taken orally with standard thermometers The actual observations made numbered 2169 A reading of 98 4° or upwards was obtained only on 225 occasions Ten of the girls examined did not reach 98 4° once during the 16 days This agreed with his clinical observation that a temperature of 98·4° was commonly an early sign of a disturbance of health The level of temperature in convalescence from illness, usually regarded as subnormal, was the same as that exhibited by these healthy girls Dr Paton's considered opinion was that the normal temperature from the clinical point of view must be regarded as nearer 97 4° than 98 4° The most valuable guide, in deciding whether a borderline temperature was a healthy phenomenon or was due to the invasion of disease, was the pulse If this was increased in rate, or if respiratory arrhythmia was absent, a temperature of 98 4° could not be regarded as physiological A rise of pulse-rate usually accompanied, if it did not precede, the initial rise of temperature, and an increase of rate persisted after the temperature had reached its natural level in convalescence Occasionally, however, a rise of temperature might occur before the pulse-rate was disturbed It was obvious from these facts that the increase of pulse-rate was not due to the pyrexia alone, but that both were due to the presence of toxins The mechanism regulating cardiac action might be more sensitive to some of these toxins than were the processes regulating bodily heat

Reports and Analytical Records.

VULPRO SURGICAL DRESSING.

(MANUFACTURED BY VULTEX PRODUCTS, LTD, GENERAL BUILDINGS, ALDWYCH, LONDON, W C 1)

THIS waterproof surgical dressing is not a fabric but resembles in appearance fine rubber sheeting It is very light, one square yard weighing only 3 oz The dressing is liberally dusted over with boric acid When examined the following results were obtained:—

Loss of weight when dried at 100° C	2 0 per cent.
Soluble in acetone (oils, resins, free sulphur, &c)	5 3 „ „
Ash	3 0 „ „
Heated at 100° C	No change in appearance or elasticity
Boiled with soap and sodium carbonate	
Boiled in water	
Soaked in cold water for 12 hours	
„ „ 1 per cent lysol	
Contact with fæces and urine for 24 hours at blood heat .	Slightly stained

Vulpro is a waterproof material of extraordinary tenacity bearing in mind its low weight per square yard and the absence of any fabric backing It is highly elastic and suffers no permanent distortion when stretched, heated, or washed

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SOUTH DEVON AND EAST CORNWALL HOSPITAL—During the last five years the work of this institution has increased 30 per cent, and a scheme of enlargement, to cost £40,000, has been prepared The hospital is now seriously inadequate to the needs of the large district it serves It is intended to make provision for paying patients

DRUIDS TINFOIL FUND—The Committee of Control of the Tinfoil (Hospital) Fund of the Ancient Order of Druids report that 94¼ tons of tinfoil were collected by its agency in 1926, in 1925 the total was 72 tons The committee complain of the "unfair competition" of other organisations which are now collecting tinfoil, not for the hospitals but for their own purposes The year's sales realised £2251, making a total since the fund began in 1922 of £8895 Fourteen beds in various hospitals have been endowed with the money, four more are now to be endowed

Reviews and Notices of Books.

THE LIFE AND WORK OF SIR PATRICK MANSON.

By PHILIP H MANSON-BAHR, M D, F R C P, and Lieut -Colonel A. ALCOCK, C I E, F R S London Cassell and Co, Ltd 1927 Pp 273 16s.

ON March 15th Mr Neville Chamberlain unveiled a tablet in the Albert Dock Hospital to the memory of Sir Patrick Manson who taught and practised there through the knowledge which he had gained with his own hands in a long struggle with the unfriendly tropics By a happy chance there appears, almost at the same moment a second monument to that great fighter, and one which will proclaim him widely and cause many men to think on what manner of man he was and some to follow where he led Dr Manson-Bahr and Colonel Alcock show, in this account of Manson, some of the patience for which their hero himself was so conspicuous, and have traced his life in great detail from the growth of his passion for medicine to his retirement from active life, and his death from heart failure in 1922 at the age of 77 His early struggles in Formosa and Amoy are detailed with his long, arduous and fruitful career of research and practice, his splendid creative work for the profession and public in Hong-Kong is described, and so we reach the crown of his life, the foundation of the London School of Tropical Medicine

His discoveries in tropical pathology are familiar to all and the volume contains a full list of the mass of valuable literature which he published throughout his life It is, however, for a portrait of the man himself that most readers will turn to this biography, and they will not be disappointed A Scotsman of the sturdy Aberdeen breed, with a passion for knowledge and an even stronger one for friendship and service, he was often crippled by gout but remained untiring at his work and as far as possible at his play —for he was a dead shot and a keen fisherman We get a picture of Patrick Manson from his son-in-law as a lovable no less than an admirable man The portrait, however, is drawn from the man as he was when, ripened by well-spent years, he returned to London About the Manson of the lonely Chinese hospitals and the improvised laboratories we can only guess, for few who knew him in those days still survive All we gather from his diary and letters is a glimpse of one who worked early and late under the most trying conditions of climate and the severest handicaps imposed by lack of proper equipment and by native prejudice, at the twin vocations of research and healing We see a man to whom nothing was too much trouble to do supremely well, to whom every discrepancy was a challenge to further exploration, and whom every form of suffering urged to spare no efforts for its relief. Manson's versatility stands most conspicuously out in a history of his life His researches cover parasites and bacteria of most diverse species, he was a highly gifted surgeon and a very efficient medical officer of health, and was trusted implicitly as an obstetrician by even the exigent Chinese. He was a fine publicist and a capable organiser, and founded the Hong-Kong Medical Society, the Hong-Kong Medical College, and the Tropical Section at the the annual meeting of the British Medical Association He was a voluminous and admirable writer. In his recreation, apart from his fishing and shooting, he had a professional knowledge of geology and was a first-class naturalist Very few men combine as he did the opposite qualities of imagination and application; he was content alike with solitude and publicity, and while keenly logical had a warm deep humanity

The book should be read as long as our tropical dependencies rely on the solution of disease problems for their prosperity in other words the Father of Tropical Medicine will always be kept in grateful memory.

MICROSCOPY OF THE FÆCES

Coprologie Microscopique. By M. LANGERON, Chef de Laboratoire a la Faculté de Médecine de Paris, and M RONDEAU DU NOYER, Preparateur a la Faculté de Pharmacie de Paris Paris: Masson et Cie 1926 Pp 132. 2s.

THIS little volume on a very important subject—the microscopy of the fæces—has been framed on modest lines. It claims to be, and, in fact is, essentially practical Within 132 pages the authors have succeeded in summarising the essentials of this subject. The descriptions of the various objects, parasitic and otherwise, which are found in the fæces are clear and accurate The text is illustrated with 129 text-figures in black and white, and a useful feature is the micromillimetre scale which accompanies them Unfortunately, these illustrations, especially of the protozoa, are not up to the usual text-book standard The greater number could, with advantage, be redrawn for a future edition

INDEX AND HANDBOOK OF X RAY THERAPY.

By Dr ROBERT LENK, Privat-dozent of Medical Radiology, University of Vienna Translated by T I CANDY, M B, D M R E, Hon Radiologist Royal Gwent Hospital, Newport London: Oxford University Press 1926 Pp. 121 6s 6d.

IT is now six years since Dr Lenk, of Vienna, published this little book, which was quickly translated into several languages We now have to thank Dr Candy for an excellent English version The book is primarily meant for the general practitioner, and by means of a formula describes suitable X ray dosage and filtration for a large number of pathological conditions These are arranged in alphabetical order convenient for reference Most X ray workers in time evolve their own technique, but as a working basis for those with little experience, nothing could be better than this handbook, backed up as it is by the mature experience of the Vienna school of radiotherapeutics This book is well published and well translated, and can be confidently recommended to all radiologists

THE PRINCIPLES OF PATHOLOGY.

By C POWELL WHITE, Manchester University Press London Longmans, Green and Co 1927. Pp. 279 15s

SOME people think that pathology is nothing more than a useful adjunct to medicine and surgery; to them a " pathologist " is one who helps in diagnosis during life by carrying out laboratory procedures, which are now of bewildering variety, and by verifying the cause of death at autopsy A minority have, however, urged from time to time that pathology is a biological science which can stand on its own feet, and has principles of its own to work out What these are Dr Powell White has sought to state in an interesting and refreshing book; it will, we imagine, come as rather a surprise to a good many pathologists that it is possible to discuss the subject in such terms as he uses. His main thesis is that the proper subject matter of pathology is the study of adaptation to adverse conditions, whether the adaptation be one of organism organ, tissue, or cell. he goes, indeed, further and is prepared to recognise the existence of living units ('biomeres ") of a lower order than cells He derives pathological processes from the processes of general biology and rightly suggests that biologists might get as much help from pathology as pathologists may from biology. The fundamental point from which pathology starts is morbid anatomy, because it is quite characteristic that each living thing has a definite morphological organised structure, and the ultimate basis of life is morphological rather than chemical Pathological processes are divided into consecutive (the direct results of injury), adaptive (the attempt to correct the injury), and autonomous (arising within the organism and proceeding along a defined course—e g, senile changes) Such are examples of the fresh way in which he orders familiar facts We know of no recent book in English which a senior student might read with greater profit; it is not one to begin with, for it presupposes a tolerable acquaintance with the ordinary data of pathology, and seeks to describe the relationships of pathological processes rather than their details It is particularly valuable because it is provocative enough to compel the reader to think at least a little for himself The day is pretty far distant when anyone will write a satisfying philosophy of pathology Dr Powell White has certainly not succeeded in his present attempt But he has done a very real service to the science if he has succeeded, as we think he has, in showing that such a philosophy is possible and in getting people to think along the lines which will help its realisation.

BACTERIOLOGICAL ATLAS

By RICHARD MUIR, Demonstrator of Pathological and Bacteriological Methods in the University of Edinburgh Edinburgh: E and S. Livingstone 1927 Pp 134. 15*s*

THE idea of the Atlas, we are told, is to convey a picture of the various pathogenic micro-organisms as seen with the microscope This idea Mr Muir, whose skilful portrayal of microscopical preparations has long been familiar to medical students and practitioners, has successfully realised. The question as to how far it is desirable to insist upon the morphological characters of bacteria, which an atlas connotes, is not relevant, for serious students will soon learn the importance of other methods of distinguishing between organisms The 60 beautiful plates here reproduced are up to Mr Muir's usual high standard The only criticism we would level against the book is that the magnification at which the pictures are produced is considerably greater than is usually attained to by the student, and hence to his mind the organisms are shown in an idealised form

STRAY LEAVES FROM A PHYSICIAN'S PORTFOLIO.

By SIR JAMES CRICHTON-BROWNE, M D, LL D, F.R S London Hodder and Stoughton Pp 351 12*s* 6*d*

SIR James Crichton-Browne has published here an olla-podrida of lectures, articles, and literary studies which have appeared from time to time in magazines and reviews and makes from them an entertaining and instructive volume The first and most serious paper is a reprint of the Cavendish Lecture delivered before the West London Medico-Chronological (sic) Society on June 30th, 1895; this dealt with the conditions known as "Dreamy Mental States," which vary from the well-known "I have been here before" feeling to the state of mental exaltation described by Tennyson and others in which the subjects seem to themselves to "touch the skirts of immensity and mystery" Another paper deals with that unhappy personality Branwell Bronte, who in the author's opinion was not so bad as he has been made out to be The paper on "Claret in Scotland" is admirable reading at this juncture, especially when it is prophesied that the tax on spirits may be lowered and that on foreign wines be increased We commend the following remark of Sir James Crichton-Browne to the authorities—"the substitution of whiskey for ale and claret as the popular stimulant in Scotland was a great national misfortune which still affects the country," and the author goes on to give cogent reasons for his statement Other papers deal with such diverse subjects as Light and Sanitation, Thomas Young Poisons and Poisoning, and as a whole the book makes excellent matter for reading at odd times

MICROBE HUNTERS

By PAUL DE KRUIF London Jonathan Cape 1927. Pp 389. 12*s* 6*d*

THE American edition of this book which appeared last year contained allusions to which strong exception was taken by some of our readers (THE LANCET, 1926, ii, 729) The English edition which has just been issued loses little by the omission of certain chapters containing references to living workers, for the book is no ordered chronicle of bacteriological progress, but a flashlight turned upon some of the peaks in the irregular chain of men whose height of achievement is outstanding That such beams sometimes give a distorted image—manifest in photographs of public celebrations and on every man's passport—does not prevent Dr de Kruif's book of impressions, at any rate in the form in which it has reached us, from being vivid and stimulating He outlines in turn Antony Leeuwenhoek, Lazzaro Spallanzani, Louis Pasteur, Robert Koch, Emile Roux, Emil August Behring, Elie Metchnikoff, Theobald Smith, Walter Reed, and Paul Ehrlich, these sketches show an intimate knowledge of the exhilaration and reaction which in different proportions make up the life of every research worker. Dr de Kruif's style is exuberant without affectation, and though it may jar some of his readers it will appeal to others He is sometimes unrestrained and occasionally rather theatrical, but he does make us catch the frenzy, savour the bitterness, and share the triumphs of each investigator in turn Koch alone does not come alive for the reader, perhaps because the Teutonic reserve and thoroughness does not lend itself to this sort of impressionist study Certain phrases lose their force by repetition—for example, too many of these pioneers are said to "sniff" round their objectives Dr de Kruif is so far steeped in the lives as well as in the works of the microbe hunters whose fortunes he follows that we find ourselves zealous partizans, fearing that the next page will bring news of discomfiture or discredit to those whose adventures no investigator, however humble, can help identifying with his own All who aspire to enlist among the irregular legions who fight for knowledge of any of the biological sciences will enjoy this book.

JOURNALS

INDIAN JOURNAL OF MEDICAL RESEARCH Vol XIV, No 3 January, 1927—In this number P J Barraud continues in four lengthy articles his revision of the Culicine Mosquitoes of India, Parts XIX—XXII, this is a painstaking work of purely entomological interest—H E Shortt, in collaboration with several fellow workers, contributes a series of five papers dealing with various aspects of the leishmania problem, and together with P J Barraud and A C Craighead describes abortive attempts to transmit the infection through *Phlebotomus argentipes* to laboratory animals—R McCarrison has four original papers dealing with his specialty, the effect of various cereals and manganese on growth, and the further detailed history of goitre in the Military School, Sanawar, Punjab—R B Lloyd, E Muir, and G C Mitra have investigated the influence of syphilis on leprosy as indicated by the Wassermann reaction, whilst N H Fairley publishes for the first time his remarkable observations on the spontaneous cure of bilharziasis (*S spindalis*) in monkeys—Asa C. Chandler contributes a further series of three papers on the prevalence of hookworm and other helminthic infections in India, E O Hodgson, A C Vardon, and Zorawar Singh describe, in a preliminary note, the blood sedimentation test as a quick and simple means of differentiation of malaria from kala-azar, enteric, and other fevers

HEALTH WEEK—This year's Health Week is being arranged for Oct 2nd to 8th Appeals for the coöperation of local authorities have been issued by the responsible committee, of which Prof Bostock Hill is chairman, from 90, Buckingham Palace-road, London, S W 1

THE LANCET.

LONDON SATURDAY, MARCH 26, 1927

LODGING FOR THE NIGHT.

THERE are still a great many homeless people London Some of them are incapable of domestic fe, some are too frail or too unskilful to earn the nt of a room, others are separated from their iends or families, either by fault or misfortune ll these have to find a roof at night and their choice, they have little money, lies between the Poor-law sual ward, the free "shelter," the unlicensed doss- ouse, and the common lodging-house The first ternative is universally disliked It smacks of rison, for it means solitary confinement by night d detention by day, its welcome is intended to revent return, and even if applicants are no longer t at oakum-picking their tasks are often just as seless and therefore as humiliating The free shelters e of variable quality, they are under no central thority and comprise alike the excellent establish- ents of the Salvation Army and a series of philan- ropic institutions many of which are out of date d insanitary Shrinking from all kinds of institu- onal charity, some of the poorest people find cover the unlicensed doss-houses which still exist in e East and South of London A bed in a doss- use costs 3*d* or 4*d* per night and the standard comfort is necessarily low since they are run profit The same objection applies to many of e establishments licensed as common lodging- uses by the London County Council, which form e fourth alternative resting-place They number 5, having accommodation for 14,855 men, 1944 men, and 246 married couples, and they may divided into three groups, according to the tariff Group I (*5d* to *7d* per night) there are only l beds for women These are always fully occupied, d are wholly provided by philanthropic agencies, e reason being that women are relatively expensive dgers, and with the lower rents leave no margin r profit under the Council's conditions of inspection Group II (8*d* to 10*d*) there are 882 women's ds and about 10,500 for men, 3000 of them owned ther by the London County Council or by philan- ropic agencies Lastly, in Group III (from 11*d* pwards) the female accommodation is privately ned, whilst most of the male beds are kept by the uncil. Taking all three groups together the pro- rtion of beds usually occupied is 85 per cent for men d 92 per cent for women The total accommodation ailable has decreased from 29,574 beds in 1894 17,045 at the present time, this being attributable a steady decline in the numbers of the common lging-house class During the same period the uncil has secured much greater cleanliness of uses and equipment, and the shocking conditions scribed about the middle of last century have no rallel to day

The above figures are taken from a report[1] by F N KAY MENZIES, which forms an interesting ly to criticisms of the Council's regulation of ing-houses In a recent book[2] Mrs CECIL CHESTERTON gives an account of her own adventures in these institutions

"There is," she says, "a deplorable lack of proper *accommodation for the itinerant London outcast.* Be she matchseller or prostitute, she should have the opportunity of getting a decent bed on payment of a fixed sum Outside the Salvation Army shelters the standard of cleanliness is variable Among the public lodging-houses, run for individual profit, it is extremely low, and in some of these places the beds are stained, the blankets dirty, the washing accommodation of the most rudimentary kind, and this, it is somewhat disconcerting to find, in houses licensed by the London County Council and under its inspection"

Describing the fate of women left without references or friends she attributes their deterioration, inter alia, to the conditions found in common lodging-houses Forced to sleep in a dirty bed, without facilities for keeping body or clothing clean, the homeless woman inevitably loses self-respect, sometimes ven the public wash-house refuses her admission Regarded *as worthless, she soon becomes so, and for want* of a few days' decent lodging and a helping hand acquires the mental and physical stigmata of the outcast Not only, says Mrs CHESTERTON, is the accommodation for women often degrading, but it is also insufficient Although the County Council have established admirable lodging-houses for men they refuse, she says, to do the same for women, because a fair proportion of the lodgers in licensed houses are prostitutes, and the Council are "terrified to be associated in the work of providing beds for prostitutes lest they should be accused of countenancing a loose method of life" To a widespread prejudice against destitute women Mrs CHESTERTON ascribes the shortage and low standard of accommodation provided for them And this failure of accommodation she blames for the progressive degradation of many useful members of society As a remedy she would, first, erect shelters—free or at nominal rents—to which all in need should be admitted without any inquisition, secondly, set up hostels for manual workers, and, thirdly, provide comfortable lodging-houses for women—similar to those for men—at an economic rent of 10*d* to 1*s* 4*d* Thanks to Mrs CHESTERTON's efforts a well-equipped lodging for 45 women is to be opened this year in Bloomsbury by Cecil Houses (Incorporated)

Dr MENZIES sees the situation differently Even the present reduced accommodation, he considers, is more than adequate, and of temporary shelters there are plenty The cheaper common lodging-houses are almost always full, but that is because they are kept at a financial loss by philanthropic bodies, and advantage is naturally taken of their alms Many of the inmates could well afford to pay for beds elsewhere at higher prices, whilst others should properly be in Poor-law institutions It is almost unanimously agreed, he remarks, that the amount of cheap lodging-house accommodation ought not to be increased, as this step would simply lessen the demand for beds at a higher rental Attempts have been made in the past, he points out, to provide really good lodgings for working women and girls, but they have almost always come to grief The lodgers either resented "ordinary disciplinary regulations" or else made no effort to take advantage of the amenities offered "These are facts of practical experience," says Dr MENZIES, "which should be borne in mind by those who think that men have been better and more considerately treated than women," and it is certainly to be hoped that a happier fate will attend the new Cecil House, and an establishment of similar purpose which is being put up by the Church Army Together these institutions will increase the total accommodation for women by 10 per cent It is right however, to remember that it is not the Council's object to encourage the hostel or lodging-house habit, but rather to hasten its disappearance In the meantime, though the accommodation appears æsthetically repellant, it is doubtful, says Dr Menzies, whether anywhere among the poorer classes there can be found a standard of house cleanliness at all comparable to that of the licensed lodgings Admittedly, they are far from perfect Washing arrangements are often inconvenient and in 30 of the 37 houses for women there are no bathrooms But these conditions are parallel to those in working-class homes The price paid by casuals is too small to allow provision of a fresh pair of sheets for each newcomer, those offered must be "clean but not necessarily fresh" And in the women's lodgings equipment is especially difficult because bits of bed linen are frequently abstracted and because sheets are easily soiled—facts which partly explain the lower standard of the accommodation provided Clearly, the present state of affairs need give rise to no complacency Much has still to be done to ensure that men and women have quarters as good as their money will buy, and a reform in spirit as well as in regulation is needed if the Poor law is to lose its degrading effect The lot of the destitute may be improved, however, without wholesale establishment of free shelters or lodgings at a nominal rent Such philanthropy would create its own problems, and would be mistaken, since the function of charity should rather be to meet emergencies than to sustain the major burdens of society

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[1] Common Lodging houses and Kindred Institutions ort by the Medical Officer of Health, L C C No 2489 Pp 35 1*s* 6*d*

[2] In Darkest London By Mrs Cecil Chesterton London ley Paul and Co, Ltd 1926 Pp 255 5*s*

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BIOLOGICAL RELATIONS OF OPTICAL ISOMERS

Probably no one could have foreseen that Pasteur's discovery in 1848 of the association between the asymmetry of the crystals of tartaric acid and their optical rotation when in solution was to lead to a clearer recognition of the intimate nature of the response of tissues to drugs Yet such is the case, and the story of the intervening steps has been told in a manner at once clear and full of interest in a volume[1] which has recently appeared from the pen of the late Prof A R Cushny The book has a significance apart from that due to its value as a record of a line of work to which he contributed so much, in that it forms the last publication of one of the greatest investigators among the modern school of physiologists Le Bel and van't Hoff showed in 1874 that optical isomerism exists in those compounds which possess an asymmetric carbon atom in their molecular configuration When such compounds, however, are built up in the laboratory without use being made in their synthesis of any substance which already shows optical rotation, the resultant compounds are invariably racemic The resolution of a racemic mixture into its optically active components demands the presence of some compound which is itself optically active This law is illustrated in Pasteur's second method of separating the isomers of tartaric acid, he found cinchonidine l-tartrate much less soluble than the d-tartrate, and so by this means was able to resolve the originally racemic mixture A vast field for speculation is thus opened up as to the origin of the first compound possessing optical activity, and attention is directed by Prof Cushny to the possibility that temporary molecular rearrangements may be brought about by some external source of energy, a suggestion brought forward by van't Hoff and studied by Erlenmeyer when working on the asparagins A third method of separating optical isomers from a racemic mixture is also to be attributed to the genius of Pasteur. It was found by him that moulds and yeasts attacked ammonium d-tartrate much more actively than its lævorotatory isomer The enzymes, however, cannot be classified into those destructive to lævorotatory and those destructive to dextrorotatory bodies; nor do different enzymes select the same isomers from a given racemic mixture Further, some enzymes act on each optical isomer of a given pair to the same degree, others act on both but with unequal potency, others yet again act only on the one isomer "It is impossible," says Prof Cushny, "to state a priori which isomer will prove the more susceptible"

These in vitro observations have their counterpart in experiments in which the fate of isomeric substances administered to animals is determined. Since the metabolic changes undergone by such substances in the body must be considered as due to enzyme action, it is not surprising that we usually find the dextrorotatory and lævorotatory isomers attacked unequally, and that occasionally tissues show no preference for the one or the other For example, d- and l-tartrates are equally oxidised in the tissues, whilst the optical isomers of such closely related bodies as the malates show a distinct difference in their susceptibility to breakdown by the tissues, the natural lævo- being much more readily attacked than the artificial dextro- form The first definite experimental evidence that a difference may exist in the response of a tissue to the optical isomers of a given compound was brought forward by Cushny working on the hyoscyamines He discovered the interesting fact that l-hyoscyamine was about twice as potent in its action on the nerve endings of the autonomic nervous system as d-l-hyoscyamine (atropine), the conclusion drawn from this observation being that d-hyoscyamine was practically devoid of action at these sites This conclusion was shown experimentally to be valid Analogous results have since been obtained with other isomeric substances such as the hyoscines, nicotines and epinephrins In some cases each isomer exerts a potency equally to that of its image, in others both are effective but in unequal degree, and yet in other cases one is effective and the other completely inactive

We find, then, in the study of the pharmacological reactions of isomeric substances a state of affairs which is closely akin to that existing between optical isomers and alkaloidal reagents on the one hand, and between optical isomers and enzymes on the other. Cushny points out that there can be very little doubt that fundamentally we are dealing with similar chemical reactions in these three cases that l-hyoscyamine has a much greater action on the autonomic nerve endings than d-hyoscyamine for precisely the same reason that l-tartrate is more easily precipitated by cinchonidine and less readily oxidised by penicillium than d-tartrate, "that is, because in the tissues, as in the test-tube, the isomers form compounds with some optically active substance, and these compounds are no longer mirror images and no longer identical in their physical characteristics" There are, of course, other factors besides the optical rotation of a pharmacological substance which must be taken into account in attempting to correlate the physical and chemical constitution of drugs with their action on the tissues G Barger and H. H Dale found that the action of sympathomimetic amines was in some cases greatly reinforced by substituting OH for H in the molecule, and thus rendering one carbon atom asymmetrical The resultant increase in activity was naturally attributed to the asymmetry, but Cushny has recently shown that in the tropeines the presence of the hydroxyl group rather than the asymmetric carbon atom per se is the activating factor For example, it was found that hydratropyl tropeine. which differs from atropine merely in that the CH_2OH group of atropine is replaced by CH_3 has only about one two-hundredth the activity of atropine in arresting salivary secretion We see, therefore, how three factors come into play in determining the relative efficacy of a chemical compound in producing a given physiological response First there is the necessity for a certain molecular configuration—phenacetyl tropeine has a slight atropine-like action—to the compound , secondly, the presence of alcoholic hydroxyl in the side-chain of the acid augments the activity to a very large degree , and thirdly, an asymmetric carbon atom, by conferring optical rotation on the compound, is responsible for the potential difference in pharmacological activity between the optical isomers of that compound The similarity which a given optical isomer exhibits in its reactions with an optically active alkaloid, with an enzyme, and with the particular tissue on which the isomer concerned is said to exert a specific pharmacological action, points clearly to the presence in the tissue acted upon, of a chemical grouping similar to that found in the alkaloid and enzyme As Prof Cushny put it, “ Pharmacological investigation may then be regarded as a method of applying a qualitative test for the presence of certain chemical groupings in living matter and joins other biochemical methods in that object ” It is this valuable method of in vivo biochemical analysis which he has placed in our hands Such specific effects as those resulting from the action of the digitalis group on the heart muscle and cardioinhibitory centre, of morphine on the respiratory centre, pain path, and gut, and of atropine on the parasympathetic nerve-endings and central nervous system, thus receive a rational explanation But Prof Cushny was careful to point out that pharmacological methods alone can do little more at this stage of knowledge than to provide further examples of such reactions Their analysis must await a clearer insight into the fundamental nature of the interactions between optical isomers and alkaloidal reagents on the one hand, and between enzyme and substrate on the other, and these can only be furnished by the experimental methods of physics and chemistry

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[1] Biological Relations of Optically Isomeric Substances By Arthur R Cushny, M A, M D, LL D, F R S London Baillière, Tindall, and Cox 1926 9s

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POST-MORTEMS AND INQUESTS.

When a consultant after a careful examination, admits that he has failed to make a diagnosis, the patient is apt to distrust his skill or his thoroughness, and to go elsewhere The next man approached realising that a definite conclusion is expected of him. is sometimes tempted to dogmatise on mighty little evidence His guess may be a lucky one—in which case he derives much credit and still deserves it, since medical diagnosis cannot be an act of rigid deduction In certain branches of medicine, however, mere presumptive evidence is hardly allowable however much satisfaction it may give to the parties concerned These reflections arise from the report of a recent case where a coroner dissatisfied with the negative results of an autopsy performed by a professor of pathology at a great London hospital called for another post-mortem by a pathologist known to him but not attached to any teaching hospital The second autopsy was duly performed and although no further light was thrown on the case by the pathological changes found. the cause of death was pronounced to be angina pectoris on grounds of clinical history The interesting point is that the report of the first post-mortem examination was if anything fuller and more helpful than that of the second There seems to have been nothing in the naked-eye examination of the organs to show the cause of death There is no record that any histological examination of the tissues was made on either occasion

The last thing we would desire would be to damp a coroner’s enthusiasm for post-mortem examinations. These should be held much more frequently than they are especially in private practice, but the ordinary coroner’s post-mortem is often useless because (*a*) it is done too late—by the time the formalities have been gone through post-mortem decomposition is well advanced ; (*b*) no microscopic or bacteriological examination of the organs is made In a large number of cases the naked-eye examination alone is inadequate ; the true condition can only be found on microscopic examination Moreover, it is a mistake to assume that a post-mortem even with microscopy, will invariably clear up the mystery of the cause of any death It is often enough impossible to say why a patient died A patient may reveal chronic lesions which must have interfered considerably with his physiology, yet he must have carried on with the disabilities for a considerable time A milder degree of disability on the other hand, would have proved fatal to another individual. The interesting speculation is often not why did the patient die ? but why did he not die months or years before ? It is *obvious that* the clinical history is of the first importance On clinical evidence alone the cause of death can often be given with a great degree of probability but the post-mortem may be necessary to exclude other possibilities For example a patient suffers from acute gastro-enteritis and dies In all probability he dies from acute food poisoning and a certificate may justifiably be given A superficial naked-eye post-mortem may give no more information than that the patient had acute inflammation of the stomach and intestine and death will be put down to toxæmia or syncope But a post-mortem may be advisable or necessary to exclude for example, arsenic, or to determine the nature of the food poison when an extensive bacteriological and chemical analysis will be necessary In short a post-mortem may be necessary to exclude other than apparent causes of death but it must be complete.

A combination of clinical and pathological evidence will usually clear up any case, but the danger in legal circles lies in placing too much importance on pathological evidence It is almost true to say that the better the pathologist the worse the witness . In the witness-box it is no good offering suggestions or tentative opinions To the legal mind facts are facts, and science is science and it is possible to be certain of anything under the sun The scientific pathologist will rarely say more than that his findings did or did not square with the clinical evidence. or that he found certain *conditions* which might well be incompatible with satisfactory physiological functioning of vital organs It is one thing to discover pathological lesions and quite another to determine how far these lesions are of vital importance ; even an expert can only express an *opinion* and in 99 cases out of a hundred the opinion may be correct But sooner or later, he is asked. not whether a person died of such and such a lesion. but whether he was killed by it Then he comes up against the conflict between scientific doubt and legal necessity For the credit of medicine scientific fallibility—in the biological sciences especially—should be properly recognised and medical witnesses will always be in a dilemma till this is done

Annotations.

"Ne quid nimis"

THE HEALTH OF THE COAL-MINER

We have already given some account[1] of the Industrial Health Education Society and its activities in teaching employees to defend themselves against occupational hazards Not the least useful among its publications are the pamphlets dealing with conditions of life in different industries, and of especial interest at the present time is one entitled, "The Coal-Miner," by Prof E L Collis, whose experience in the preventive medicine of mining and whose efforts to promote the welfare of miners make him a recognised authority The long series of stoppages in the industry is, he thinks, the price of neglecting the miner's needs Lack of provision for details of comfort and efficiency leads directly to a high mortality from the four main causes of death—phthisis, pneumonia, bronchitis, and accidents Mortality-rates are alike the measure of this neglect and of the dissatisfaction it causes, thus the strike ballots taken on the various coalfields, which indicate numerically the miners' collective dissatisfaction with the conditions in the industry, show an order closely parallel with that of the mortality records Nor does it seem that we have profited much by bitter experience Prof Collis considers that in one direction alone—that of social welfare—is any considerable attempt being made to improve the miner's life, and he points out clearly where each set of conditions is at fault and how they may be bettered Hot food supplied from the pit-head and drinking-water piped to the workings, as it already is in the United States, are needed, he says, to ensure better health and efficiency, for the amount of body-fluid lost at work underground may be anything from one to two pints an hour In America, where miners are supplied with electric cap lamps, nystagmus is rare, in England it is common, and the large bulk of the patients are users of safety-lamps Compensation claims for this disease out-number claims for all other industrial diseases taken together, so there is a strong pecuniary as well as a sentimental reason why every effort should be made to improve underground illumination One of the most urgent needs, however, is the provision of baths at the pit-head The miner at the end of his shift is black with coal-dust, is tired, and is cold and wet with perspiration No other worker needs a bath and a change so badly before travelling home He has to risk catching a cold that may lead to pneumonia and to endure the ostracism of fellow-passengers in public vehicles as the ordinary end to every working day Even harder, perhaps, is the burden on his wife, she has to prepare the bath, which is taken on the hearth in the living-room, and has to put away the bathing utensils, scrub the floor and, worst of all, to clean and dry her husband's clothes, which are covered with mud and coal-dust, and which soil all they touch Many children are killed through falling into the hot water prepared for their fathers, one coroner says that he holds more inquests on children dead from scalds and burns than he does on miners who die from accident Nearly every country but this has laws enforcing the provision of pit-head baths, but British owners, as a whole, still cannot see their productive value, and the men—naturally a conservative class—are only half-hearted in their demands for them Unfortunately there is also opposition from the wives, and some employers complain that this is the deciding factor Once clean, the wife argues, my husband can go off to the public-house and never come home till nightfall, I would rather make him come home for his bath and retain some hold over his leisure Dirt and inconvenience, however, are poor props to domestic life, and Prof Collis, for his part, considers that provision of baths would probably be a more important reform than any other single measure, besides enormously reducing the incidence of respiratory disease and of the various skin troubles peculiar to miners, they would, he thinks, remove a great deal of the existing inducement to convivial drinking, and thus increase the miner's self-respect Their introduction, long overdue, together with that of hot food, adequate drinking-water, and improved illumination, would lead to an enormous gain in efficiency and health and thus prevent many accidents, 80 per cent of which are due to personal carelessness, often the result of some degree of ill-health They would make happier homes and, by relieving the house-wife of much labour, would reduce the infant mortality These measures would not be a high price to pay for the removal of a large amount of industrial discontent It is to be hoped that we shall not long continue to lag behind our neighbours in applying to this most important industry our great national gift for hygiene and preventive medicine

OBSTETRIC LESIONS OF THE SPINAL CORD

Birth trauma affecting the central nervous system has received increasing attention during the last few years On this subject the obstetrician, the pædiatrist, and the neurologist find common ground, and the concerted effort which they have made to elucidate its problems may be seen in the writings of Eardley Holland, O. Schwartz, H C Cameron, W J Adie, and others This research and controversy has been almost confined to cerebral injury, and whilst current medical opinion attributes to this cause many cases of spastic diplegia which would, some years ago, have been regarded as prenatal in origin, curiously little interest has been taken in the possibility that the spinal cord commonly receives similar injuries The work now recorded[1] by Dr Bronson Crothers and Dr Marian Putnam will have the effect of focusing attention on this aspect of birth trauma They describe 28 cases of infants and children exhibiting lesions of the spinal cord, in which the evidence of trauma during delivery was in most cases unequivocal, and in all except one extremely convincing The injury almost invariably appeared to follow traction during delivery. The series is fully described and illustrated by photographs and diagrams interpreting the physical signs The conventional methods of neurological examination are hard to apply to small children and were largely abandoned in favour of objective observation of the child's behaviour, whilst interpretation of disordered function was in general based on the work of Sir H Head and G Riddoch on the action of the isolated cord The clinical observations are not easily summarised, but the 28 cases fall roughly into two classes The greater number (17 of those in which the method of delivery was known) were breech deliveries, and version and extraction had been performed in a large proportion of these One of the breech cases showed bilateral flaccid brachial paralysis with damage of the sympathetic but the great majority gave signs of diffuse damage to the thoracic cord with partial or complete isolation of the lumbar cord, in a certain number lively reflex activity was observed in the parts below the transection

The second type of lesion was found in cases of head presentation delivered by forceps In five out of eight of these the signs pointed to avulsion of brachial nerve-roots with damage to the adjacent part of the cord It is suggested that one of them may have been the result of resuscitation by swinging It is significant that in the only case in which labour was known to be normal the evidence of cord injury was not conclusive, the signs being compatible with a lesion of the superior longitudinal sinus, as suggested by Adie A remarkably small number of these cases were fatal, but in two autopsies the brain was found to be normal, whereas there was extensive hæmorrhage, or crushing, of the thoracic cord The clinical account of the cases, and the able discussion accompanying them, raises several questions of speculative interest to the neurologist Of the children having residual paraplegia, conventionally classed as cerebral diplegia, in whom mental development was normal, may not a percentage have been suffering from spinal injury below the cervical enlargement? The extent to which afferent functions persist, or return, in the damaged cord appears to differ in the infant and in the adult; in one child two months old micturition was elicited by nocuous stimulation of a flaccid limb Observation of further material of this kind should yield evidence on the action of isolated spinal elements and thus supplement information gained during the war From the practical standpoint Dr Crothers and Dr Putnam lay special stress on the apparent liability of traction during delivery to cause spinal damage, and the importance of determining the extent to which traction can or should be avoided They recognise that this question must be answered by obstetricians and invite their cooperation in deciding the attitude which should be adopted on the grounds that "the striking contrast between the apparent incidence of injury and the almost total ignoring of the subject by writers of obstetrical textbooks justifies us in suggesting that a definite shift of emphasis is desirable"

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[1] The Lancet, March 5th, p 501

[1] Medicine, vol vi No 1, February, 1927

SICKNESS AND DISABLEMENT BENEFITS

AN important section of Sir Alfred Watson's address on National Health Insurance delivered before the Royal Statistical Society on March 15th, dealt with the claims for sickness and disablement benefits Among both men and women the claims for sickness benefit fell greatly during the war years; this was particularly the case in regard to women who in 1916–17 drew less than two-thirds of the sum drawn by them in 1913–14 Since the war the claims for sickness benefit have again risen, but the cost in 1925–26 showed that, on the average sickness among men was still considerably below the level of 1913–14. Among women the indications are less satisfactory, the figures suggesting that within a short period the earlier level will again be reached Comparing the sickness experience of a representative sample of men in the years 1921–23 with late nineteenth-century experience such as that of the Manchester Unity of Oddfellows in the years 1893–97, Sir Alfred Watson remarked on the improvement shown in the health of the community. the "rate of sickness" having fallen on the average by about 20 per cent He traced this to a large reduction. at all ages, in the proportion of the insured who claimed benefit; among men of ages 40 to 45. 160 in 1000 drew benefit in 1921–23 against 246 in 1000 in 1893–97. The duration of sickness on the other hand, has increased, the new average at the ages cited being 5 0 weeks per case against 4 3 weeks shown by the older tabulation. Special and not unsatisfactory causes may explain these features: they do not necessarily indicate any real increase in the length of incapacity Among unmarried women the proportion who fall sick is, as a rule. somewhat less than among men of the same age but the duration of incapacity is much longer. and on the whole, therefore, the average amount of sickness per insured woman is greater than among men Among married women, both the number claiming and the duration of the claim are relatively greater than among the unmarried; the duration of sickness benefit in the case of a married woman claimant averages in fact the very high figure of 8¾ weeks Disablement benefit (which is entered upon when sickness benefit has been paid for 26 weeks) is found to be an increasing quantity among all sections of the insured This said Sir Alfred Watson was expected by the promoters of the scheme as it grew to maturity and so far as men are concerned the cost is well within the expectation indicated by the older friendly society experiences The extent of the claims of women in respect of disablement benefit, however, is occasioning some concern Taking men and women together it is estimated that about 200,000 persons are now permanently disabled and drawing benefit from the approved societies Sir Alfred Watson went on to explain the seasonal variation of sickness, the claims made in the winter months average from 50 to 100 per cent more than the summer minimum. The claims for maternity benefit bring out clearly the changes which are occurring in the birth-rate, among the wives of insured men in the years 1919–23 the claims were 88 per cent of those expected by the financial standard The birth-rate (compared with the married population at the reproductive ages) has thus fallen by about 20 per cent since the beginning of the century, while the proportion of the married in the population has substantially grown, the increase in this respect being 20 per cent at the ages 20 to 25, 10 per cent at ages 25–30, and 5 per cent or more in other age-groups In comparison with the birth-rates among wives of insured men the great majority of whom are not employed outside the home, Sir Arthur Watson finds the birth-rates among employed married women to be significantly low; the proportion varied with age being, for example, 69 per cent. at ages 25 to 30 and 61 per cent at ages 30 to 35 His address, although expressly stated to be a statistical review, was felt to be very enlightening on some of the social implications of our health insurance system

CONTINUOUS RECORDS OF BODY TEMPERATURES

PROBABLY few clinicians realise the numerous pitfalls that exist in clinical thermometers until they read of the early struggles and failures of those who were pioneers in the subject [1] Apart from the experimental work of many investigators who have striven to provide a satisfactory clinical method of recording temperatures, a small body of workers have made, with almost infinite patience experiment after experiment to obtain continuous temperature records throughout the 24 hours. With these efforts the names of Lombard and Clifford Allbutt, Gamgee and Sims Woodhead will always be associated Gamgee began with a thermocouple combined with a photographic recording apparatus which consisted of a revolving drum covered with a sensitised bromide paper. Subsequently the evolution of the Thompson-D'Arsonval galvanometer enabled him to advance his methods a stage further On Gamgee s death, Woodhead who had previously been interested in the subject. returned to the work and was joined by Dr P C Varrier-Jones The continuous photographic recorder was discarded in favour of the quasi-continuous Darwin thread recorder with a d'Arsonval galvanometer, an apparatus which gives an inked dot on the revolving paper of a drum at regular intervals Finally an electric resistance thermometer was devised consisting of a fine platinum wire wound round two strips of mica notched at both sides and the whole enclosed in a silver tube without coming into actual contact with the platinum wire This thermometer coil is connected by flexible wires (with "compensating" leads) to a Wheatstone bridge on which the resistance can be measured by means of the defection of a galvanometer As the electrical resistance of the platinum wire varies with the temperature it is possible. by measuring this resistance to determine the temperature of the platinum which thus acts as a thermometer Recording is carried out with the Darwin thread recorder as with the later models of the thermocouple thermometer Full working details for the use of this apparatus are given in the book. The temperatures are taken per rectum. With the use of this apparatus quasi-continuous temperature records have been made from patients lying in bed in Addenbrooke's Hospital, Cambridge, whilst the complete recording apparatus was worked in the Pathological Laboratory a third of a mile away Dr Varrier-Jones has recently published a historical summary of his work on this subject and of that of his predecessors in a book where he also supplies observations made by himself and by others on the temperature in man and in animals in health and disease He has applied these observations to the study of the tuberculin reaction in cattle and to the early diagnosis and prognosis of tuberculosis in man, showing how these more accurate methods of recording temperatures assist the physician in detecting the very early signs of activity of the disease While it is not likely that the quasi-continuous temperature record can be applied on any large scale in clinical medicine, its use may, in the hands of careful and accurate workers, elucidate some of the problems which confront those who have to deal especially with chronic pyrexial diseases For instance, a comparison is needed between the value of the various laboratory methods for detecting early signs of activity in tuberculosis and the methods of an accurate delicate thermometry

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[1] The Significance of Temperature Variations in Tuberculous Disease A Study in Continuous and Quasi continuous Temperature Records of Man and Animals in Health and Disease By P C Varrier Jones M.A M R.C S L R C P Medical Director Papworth Village Settlement. Cambridge Papworth Press 1926 Pp 174 5s

BENZOIC ACID IN FOODSTUFFS.

THE Public Health (Preservatives, &c , in Food) Regulations, 1925, came into force in January last as regards their main provisions Boric acid, and to a lesser extent salicylic acid, were the main preservatives used by food manufacturers, but these are now prohibited. On the other hand, benzoic acid is permitted in certain scheduled foodstuffs, provided that the amount present does not exceed the specified limits Benzoic acid hitherto has not been extensively used for food preservation, and the report by Dr M S. F Monier-Williams,[1] recently issued, is timely as this substance will require more attention from food analysts The available methods for the separation of benzoic acid from foods involve either extraction of the acidified foodstuff with solvents, and recovery of the benzoic acid by evaporation of the solvent, or steam distillation In the solvent method preliminary treatment is necessary to remove proteins, fats, and other interfering substances, and to obviate the difficulties caused by the formation of troublesome emulsions Removal or destruction of proteins is almost always necessary as they are liable to cause emulsions on extraction with solvents, and also to retain benzoic acid The removal of the proteins by precipitation may lead to loss of benzoic acid in several ways which the author discusses With foods containing much fat it is probably safer to separate the fat, and to extract benzoic acid independently from the fat and from the fat-free residue Steam distillation is successful with non-fatty foods if certain precautions are observed The author describes a new method of steam distillation available for the determination of benzoic acid in fruit and vegetable products This is based on the observation that benzoic acid is readily and completely volatile in steam when the liquid in which it is present has previously been saturated with salt This method is described in detail and the quantitative results obtained suggest that it is one of great accuracy for the types of food for which it is proposed to be used The separation of benzoic acid from volatile fatty acids is a matter of some difficulty It is only in rare cases that direct extraction yields a product sufficiently pure for titration or weighing, without further treatment The various purification methods are discussed and sublimation is considered the best and most reliable method It is evident that the analytical difficulties involved in the determination of benzoic acid are considerable As regards the tests for benzoic acid, Mohler's test is described as the most delicate, while the ferric chloride test is more characteristic but somewhat less delicate The most characteristic test is Jonescu's, if we except those which depend on the sense of smell There is, of course, to be borne in mind the possible occurrence of benzoic acid in nature, but Dr Monier-Williams has only found it in one edible fruit (the cowberry or red bilberry) to any appreciable extent, certain substances, however, occasionally met with in foodstuffs may give reactions similar to those of benzoic acid, and care is therefore necessary in applying confirmatory tests

PLASMOCHIN

IT is now some time since we first recorded[1] the claims made for plasmochin, a synthetic compound produced by H Horlein in the Bayer laboratories at Elberfeld and recommended for the treatment of malaria The drug was obtained by adding various side chains to the quinoline ring which is also one of the essentials in the basis of the quinine molecule Chemically speaking, plasmochin is ethylamino-quinoline hydrochloride Our knowledge of its action is really based upon the action of quinine on the *Proteosoma præcox* infection of birds, and the preliminary experiments were performed by W Röhl on hundreds of artificially infected canaries using as a therapeutic standard the effect of quinine on this plasmodium, which had already been studied In this way it was shown that plasmochin exerted a parasitotropic action about 60 times greater than that of quinine, and the peculiar fact emerged that plasmochin has a far more rapid and destructive action upon the gametocytes, or sexual forms of the parasites, than upon the immature schizonts In 1925 F Sioli began to test the therapeutic action of plasmochin (Beprochin, as it was then called) on lunatic patients artificially infected with benign tertian malaria The doses attempted ranged from 0 05 to 0 25 g daily, the latter dosage, however, proved too large The patients rapidly developed a livid cyanosis of the face, lips, and especially the nails There were evidently toxic phenomena which, it was thought, could be eliminated by smaller doses Later in August, 1925, P Muhlens was able in Hamburg to observe the action of plasmochin upon 134 cases of naturally acquired malaria, and substantiated in the main the specific action of the drug upon the benign tertian parasite Under its influence the crescents, or gametocytes, of the subtertian form disappeared with great rapidity, but parasitic relapses with schizonts were apt to occur in *P falciparum* infections, so that the action of plasmochin had to be reinforced with quinine The best dosage was found to be 0 1 g daily, given in five doses of 0 02 g each At first the drug was exhibited in capsules, but latterly in tablet form Better results were obtained in subtertian malaria by combining it with quinine This was known as plasmochin compound, a tablet consisted of 0 01 g plasmochin with 0 125 g quinine sulphate, and six tablets were taken daily During 1926 Dr P Manson-Bahr, as related on March 2nd, at a meeting of the Section of Tropical Diseases and Parasitology at the Royal Society of Medicine, treated 18 cases of malaria with plasmochin and 10 with plasmochin compound at the Hospital for Tropical Diseases in London Exercising great care in clinical observation of the cases, besides making daily examinations of the blood, he has been able to confirm to a great extent the observations already made in Hamburg In benign tertian infections, he states, a dosage of 0 08 g plasmochin daily for five days caused rapid disappearance of the parasites with a very rapid reduction in the size of the spleen In subtertian malaria the crescents disappeared, as a general rule, within four days, but parasitic relapses were very liable to recur with the therapeutic doses mentioned In the latter infections, also, cyanosis developed in three cases, being associated with methæmoglobinuria in one of them This curious toxic state is due to the formation of methæmoglobin from the corpuscular -

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[1] The Determination of Benzoic Acid in Foodstuffs, Public Health Reports, Ministry of Health, No 39, 1s

[1] THE LANCET, 1926, ii , 765, 1279

hæmoglobin, and may be compared to potassium chlorate intoxication In plasmochin compound, however, the addition of small amounts of quinine seems to counteract these defects, and the results in 10 cases were equally efficacious in both benign and subtertian infections Dr Manson-Bahr concludes that plasmochin has to be regarded as the first of a new series of antimalarial synthetic drugs, and not as the climax of what has already been accomplished The future, he considers, is distinctly hopeful as regards the synthesis of a still more efficient antimalarial compound

HOSPITAL BEDS FOR THE MIDDLE CLASSES

PROVISION of hospital accommodation for patients of the professional and middle classes is gradually being made Many of the great hospitals have either in fact or in preparation blocks designed for paying patients, and other smaller institutions are increasing the number of beds allocated to the middle classes We have often set out the difficulties which have to be overcome when a charitable foundation created to serve the sick poor accepts patients from another class; these difficulties do not arise when hospitals are designed exclusively, as was the St Andrews Hospital in Dollis Hill, for the treatment of the professional and middle classes This admirable institution is now appealing for funds to build a home for nurses and maids outside the hospital building, thus giving space for 12 or 14 more beds for adults and for a children's ward with 12 cots Another private hospital for the middle classes is being organised in connexion with the Ladies' National Clubs, which provide residential accommodation for many women and girls in London and the South of England A large house has been secured in South Kensington which is being equipped with a suitable operating room It will have 34 beds, of which 12 will be in separate private rooms, the men's ward with 4 beds, 3 women's wards with 2 beds in each, and 2 larger wards each containing 6 beds The prices will range from 4 guineas a week upwards, private rooms costing 6 guineas a week, including maintenance and nursing The operating room fee is to be a guinea It is hoped that the institution will be self-supporting, any profit made being used for its improvement or extension. The hospital will be under the supervision of a non-resident medical superintendent who lives near at hand, and will, when necessary, be able to procure for members the services of consultants at fees modified in accordance with the patient's means In order to be eligible for admission an entrance fee of 10*s* 6*d*. is payable by anyone who is not a registered member of the Ladies' National Clubs, the subsequent annual subscription being 21*s* Particulars of how to join the parent organisation may be obtained from the registered office, 11, Cromwell-road, London, S W 7. It is intended to have a Guest House near the hospital, running in connexion with it, so that friends of patients and members coming to London for medical advice can obtain accommodation there on moderate terms It is not clear what would be the position if all the beds at the hospital were occupied when an urgent case for admission among the members presented itself, but doubtless the management have foreseen the possibility of this and will provide against it No mention is made in the literature which has reached us of an X ray room or pathological laboratory; in fact the prospectus gives the impression rather of a moderately priced nursing home under medical supervision, with expert staff available at modified fees, than of a fully equipped modern hospital, which could hardly be a business proposition if run on such a small scale It will be remembered that an association with much the same aims, entitled the Professional and Business Women's Hospital League, was organised and flourished for some years on less ambitious lines—that is, the members when ill were accommodated by special arrangement in the St Andrews Hospital, Dollis Hill, or the South London Hospital for Women This new scheme, however, apparently caters for men as well as for women; it is not stated whether the affluent are ineligible or whether they will be freely admitted to the hospital on the standard terms, presumably the consulting staff will not be asked to reduce fees unless inquiry has been made into the patients' circumstances. We shall watch the development of the scheme with interest

TOOTH-POWDERS AND PASTES

IN contemporary dental literature the subject of dentifrices is but seldom discussed It almost seems as though the dentifrice is becoming an elegant toilet preparation rather than a pharmaceutical product, and that the manufacturers are being allowed to take the initiative in deciding what qualities are requisite in it A recent paper by Mr F N Doubleday[1] should remind the dental profession that the lead ought not to pass by default to those whose interest is purely commercial, and it also contains an interesting discussion of the ideal preparation Tooth-paste, he remarks, has largely replaced powder in the public esteem, and he suggests that the desire for a bland preparation has been overdone and that the detergent value of the dentifrice has suffered in consequence The prejudice against the powder probably dates from the experiments of W. D Miller, who showed that an abrasive powder might be—and often was—definitely destructive to the teeth But from the coarse powder we have gone to the other extreme, and the modern tooth-paste, though free from gritty particles which could be harmful, is so smooth that it fails to be detergent A second reason for the popularity of paste is the convenience and cleanliness of the tubes Assiduous use of it, however, often fails to whiten the teeth of heavy smokers or people whose teeth are irregularly placed, and there seems to be good reason for Mr Doubleday's contention that a properly compounded powder is preferable, as a cleansing agent, to a paste Powder, he points out, should be taken from a sprinkler or bottle, as the supply in a tin may easily become contaminated, especially where several people use a common stock This latter practice may be the means of spreading infection, for it is very doubtful if the antiseptics in any tooth-powder can keep it sterile in an open tin The ideal dentifrice should contain a cleansing agent such as precipitated calcium carbonate, which is also an antacid Sodium bicarbonate may usefully be added as a solvent of the mucus which helps to keep food debris in contact with the teeth Judging by the analyses made in THE LANCET Laboratories ten years ago[2] both chalk and soluble alkali were present in all popular forms of dentifrice As to the value of soap expert opinion differs, some writers advocating a content of 25 per cent, whilst H Prinz would limit it to 2 or 3 per cent to avoid damage to the salivary enzymes Mr Doubleday, judging by his prescriptions, agrees with Prinz As an antiseptic no dentifrice can have much effect on the bacterial content of the mouth; whatever it may be capable of doing in vitro, its constituents are so quickly diluted by the saliva that the action must always be very limited A taste of antiseptics, however, has a certain psychological value, and as Mr Doubleday points out, their presence may help to keep the powder free from accidental contamination, if thymol be used it may possibly exert some action on the growth of the leptothrix associated with the formation of tartar A point on which he lays stress is that a tooth-powder should not be kept for a long time, and should therefore be bought in small quantities There is, indeed, much to be said for the suggestion that dentists should get in the habit of writing their own prescription for dentifrices Mr. Doubleday holds strongly that the reaction should be alkaline Seeing that the organisms concerned in dental caries are acid-lovers and the primary stage of caries is the destruction of the enamel by acid, this seems rational enough, even if the alkali does not neutralise the acid formed by carbohydrate fermentation it can at least do no harm The idea that a dentifrice should be acid came from H P Pickerill, who stated that acid or sapid food substances caused a free flow of saliva of increased alkalinity, which is, perhaps, the ideal detergent agent He suggested that an acid dentifrice would act in a similar way, and this theory received considerable support In recent years, however, Pickerill's observations have been criticised by several observers, notably E C Kirk and F P Chillingworth, who point out that methyl orange, the indicator he used, is unreliable Chillingworth[3] came to the conclusion that an acid dentifrice does harm, since it forms an acid plug which seals up fermentable carbohydrate in any dental cavities and so promotes the extension of caries rather than its prevention It goes without saying that a properly designed tooth-brush and correct brushing are necessary in order that any dentifrice may act to the best advantage Cross brushing should be avoided, for even with a bland dentifrice it will eventually wear away the necks of the teeth But if the brush is worked away from the gums, and towards the crowns of the teeth, the interdental spaces are cleaned and the gums and necks are not injured Without accepting all the claims of the manufacturers it may be said that the dentifrice has a definite, if modest, place in dental hygiene, especially as nowadays the teeth are often irregularly placed, and the diet may lack the detergent elements which cleanse the mouth naturally by causing vigorous mastication

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[1] Brit Dent Jour, Dec 1st, 1926.

[2] THE LANCET, 1917, i, 29

CELL POISONING BY CARBON MONOXIDE.

THAT carbon monoxide has an effect on other substances present in living organisms than hæmoglobin was shown last year by Warburg, who found that the rate of oxygen consumption of yeasts and of a micrococcus was depressed by the presence of this gas In a recent letter to *Nature* Mr J B S Haldane states that he has extended these observations to the wax-moth, *Galleria mellonella*, and to the cress *Lepidium sativum* The behaviour of the moth in atmosphere containing as little as 2 per cent of oxygen is normal, but when the proportion is reduced to 0 8 per cent motion ceases if the other gas present is nitrogen (plus argon) When, however, carbon monoxide is the diluent, 16 per cent of oxygen is needed for normal behaviour and motion ceases at 8 8 per cent oxygen and 91 per cent carbon monoxide On admitting air recovery is rapid and complete, thus differentiating the action from that on hæmoglobin Cress seeds, which would germinate in atmospheres containing as little as 1 7 per cent of oxygen and grow poorly in 5 per cent, but almost at a normal rate in 10 per cent, in mixtures of oxygen and carbon monoxide did not germinate at all under 3 per cent of oxygen, only a few seeds opened at 7 per cent, and in 14 per cent growth was slow Whilst experiments showed that carbon monoxide was relatively less poisonous for cress than for moths or yeasts, Haldane concludes that probably "oxygen before it can be utilised for some at least of the oxidative processes in the cell, must combine with a substance possessing a lesser but well-marked affinity for carbon monoxide, these two gases combining with the same group in its molecule As this substance is found in higher animals and plants as well as bacteria and fungi, it is probably a nearly universal cell constituent" Warburg found that the compound produced, like carbon monoxide hæmoglobin, is dissociated by light These observations should be borne in mind in connexion with the more familiar immediate results of carbon monoxide poisoning The gas is likely to occur in any situation where carbon or its compounds solid, liquid, or gaseous is incompletely burned This may result not merely through inadequacy of air supply, but also whenever a flame is cooled unduly The New York State Department of Labour has called attention in *Industrial Hygiene* for February to the widespread incidence of this gas in works of all kinds In New York the air of 24 out of 31 garages contained carbon monoxide, whilst in 17 cases the percentage of this gas exceeded 0 1 per cent, which apparently is considered permissible, although it seems unduly high The blood of 29 out of 42 workers in garages yielded evidence of carbon monoxide short of the clinical symptoms of poisoning The danger of cellular poisoning arises also in connexion with the use in confined spaces of fire-extinguishers containing carbon tetrachloride, a liquid which, although very efficacious in extinguishing petrol fires, yields carbon monoxide in addition to phosgene, hydrochloric acid, and a variety of other poisonous products

MEDICAL REGISTRATION

UNDER this title a paragraph has been circulated by one of the press agencies purporting to give the views of the Editor of THE LANCET on the scope of the General Medical Council and its penal powers One important newspaper immediately offered the *Editor an opportunity* of correction, and the agency has offered to take the same course It is unfortunate that publicity should have been given in a marked way to a wrong description of the functions of the General Medical Council and of the Council of the British Medical Association, while the words of the speaker, if accurately recorded, would have cleared up exactly the confusion

THE French Association of Anatomists has arranged to hold its meeting in London on April 11th to 13th, in cooperation with the Anatomical Society of Great Britain and Ireland The Congress will meet at University College. About 150 members of the two societies are expected, and as the French Society includes members from Belgium, Italy, France, Holland, Switzerland, Spain, Portugal, Poland, and Czecho-Slovakia, the Congress promises to be an international one such as hitherto has not been held in Great Britain On the evening of the 11th a conversazione will be held at University College One of the most interesting features of the meeting will be the reception by Mr Henry S Wellcome in his Historical Medical Museum on Tuesday, the 12th, from 8 to 11 P M On the following evening a dinner will be held at King's College Arrangements have been made for the members of the Congress to visit Cambridge as the guests of Prof J T Wilson There will be a trade exhibit dealing with scientific appliances and other technical equipment for anatomical study

ROYAL MEDICAL BENEVOLENT FUND —The annual meeting of the members of this Fund will be held at 5 P M on Friday, April 8th, at 11, *Chandos street*, Cavendish-square, London, W 1, when the officers and committee for the current year will be elected

THE LISTER CENTENARY —The centenary of Lord Lister's birth falls on April 5th, and on Monday, April 4th, the King will receive delegates at Buckingham Palace There will also be a reception by the Royal Society of Medicine in the evening The London programme for April 5th includes a reception by the Prime Minister in the large hall of the British Medical Association and a conversazione at the Royal College of Surgeons, whilst on April 6th there will be a memorial service in Westminster Abbey, followed by discourses at the Royal Society of Medicine, and a conversazione at the *rooms* of the Royal Society It is announced that the Listerian Society of King's College Hospital has been obliged to change the time of its celebrations from 8 P.M on Monday, April 4th, to 3 P M on the same day All old King's men and their friends are invited At Glasgow the Centenary will be kept on April 1st, details of the arrangements have already been published in THE LANCET (March 19th, p 622) The Edinburgh celebrations will chiefly be held on July 20th, when they will coincide with the British Medical Association's annual meeting We hope to publish in our next issue a full programme of the arrangements of the following week

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[3] Brit Dent Jour, Nov 15th, 1922

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXVI.

TREATMENT OF ACHALASIA OF THE CARDIA (SO-CALLED "CARDIOSPASM")

II.*—MEASURES FOR RELIEF.

Symptoms.—An individual, who has generally never suffered from indigestion, one day feels that his food is "sticking" deeply below the lower end of his sternum. After a time the discomfort, which rarely amounts to pain, passes away, either spontaneously or after ejection of the food—ejection, not vomiting, as the stomach takes no part in the action, which is unaccompanied by nausea. The food is undigested and alkaline, unless it has been retained sufficiently long to have undergone fermentation, and it is mixed with more or less abundant mucous saliva. The ejection is generally a more or less voluntary action, which the patient often learns to perform whenever the substernal sensation becomes sufficiently unpleasant. The first attack may be followed by similar attacks after every subsequent meal, or there may, at first, be intervals of varying length, but eventually all intermissions cease. The patient learns to eat very slowly and to choose food of fluid and semi-fluid consistence. He slowly loses weight, but finally equilibrium is established, and he is often able to carry on his occupation, though with his strength and energy greatly impaired.

Though the symptoms are very often mistaken for gastritis or some other disorder of the stomach, a carefully elicited history and the examination of the ejected material should exclude such a diagnosis. The only condition giving rise to somewhat similar symptoms is cancer of the lower end of the œsophagus. In this, however, the onset is much more insidious, and the dysphagia gets rapidly and progressively worse without intermission till complete obstruction occurs after a comparatively short time; in achalasia, on the other hand, the obstruction is no greater at the end of ten years than it was at the onset, which is always quite sudden. In cancer loss of weight and strength are generally more rapid, and the condition rarely occurs before the age of 45 or 50, whereas achalasia may occur at any age.

The X rays at once settle the *diagnosis*, the œsophagus is found to be greatly dilated, and, if it is previously emptied by a tube or by the voluntary ejection of its contents, the whole of the opaque meal is seen to accumulate in the œsophagus. In spite of violent, but intermittent, peristalsis nothing passes through the cardiac sphincter till the food forms a column about 8 in. in height, when a fine straight line is seen passing from about the level of the diaphragm to the stomach; this represents the lumen of the sphincter. In cancer the œsophagus is never greatly dilated and the whole of the opaque meal gradually passes into the stomach unless it is ejected, so that no large accumulation occurs. The lumen of the affected part is irregular in width and direction instead of being straight and uniform in diameter.

Occult blood is found constantly in the stools in cancer, but never in achalasia.

Œsophagoscopy is superfluous, as the diagnosis can be made with more certainty and much less unpleasantness by means of the X rays. The passage of an ordinary bougie is dangerous as well as useless, as the lower end of the œsophagus is so dilated that it forms a blind ending, from the left side of which the lumen of the cardiac sphincter passes; consequently a bougie generally misses the sphincter, and, unless great care is taken, it may damage the œsophageal wall. On the other hand, a flexible rubber tube filled with mercury, sufficiently heavy to find its own way without being pushed, passes through the closed sphincter without any appreciable resistance being felt—a further proof that no spasm is present. A growth, on the other hand, always forms an insuperable obstruction to the passage of the mercury bougie.

DILATATION OF THE SPHINCTER.

As it is presumably impossible to restore the power of relaxation to the closed cardiac sphincter, the object of treatment must be to dilate it to such an extent that it no longer offers any resistance to the passage of food into the stomach. This can be done most easily and with least discomfort and danger by means of mercury bougies. Rubber tubes varying in diameter between 33/64 and 46/64 in. (gauge Nos. 28 to 34), 31 in. long, and each containing the same weight of mercury (1 lb. 5 oz.), which has been found by experience to be sufficient to force the closed sphincter, are now obtainable.† It is best to pass the bougies on the first occasion during the X ray examination; it is then seen that they pass without deflection straight into the stomach. A mark should be made on the bougie at the level of the teeth when its two lower inches are within the stomach. Successively larger tubes are passed at a single sitting, and in most cases the largest one meets with as little resistance as the smallest. The patient is then instructed to pass the largest tube on himself before each meal. He finds at once that a meal taken after the passage of the tube enters his stomach without difficulty. For a few days the bougie should be retained in position on each occasion for as nearly a quarter of an hour as possible; then the time is reduced before lunch and dinner, and often, within a week, the midday passage can be given up entirely. Later the bougie is passed in the morning only, and the time it is kept down is steadily reduced. After a time, in favourable cases, the bougie is only passed on alternate days, then once a week, and finally its use is discontinued, but it is kept by the patient so that he can pass it if at any time he feels that some slight obstruction has returned.

Until recently the largest bougie I employed was No. 24; with No. 32, which, in spite of its alarming appearance, causes no more discomfort than the smaller one, improvement is much more rapid. But even with No. 24 sufficient improvement occurred in the majority of cases for patients to be able to discontinue its use after an interval of varying duration; in one patient, who was fortunate enough to have his condition diagnosed correctly on the actual day of the onset of symptoms, the passage of the bougie on a single occasion produced a complete and permanent cure. Another man was able to go through the hardships of four and a half years of active service in the war without any recurrence. Occasionally patients have found it necessary to continue to pass the bougie once or twice a day, but as they quickly get accustomed to it this is no great hardship; however, with the larger tube now in use, this will very rarely be necessary.

Two other methods of dilating the sphincter require mention. That in which a rubber bag is distended by hydrostatic pressure (Plummer's modification of Russell's method) is very painful, and has, on several occasions, led to death by splitting the sphincter. The other method is by forcibly dilating the sphincter by the fingers during a laparotomy; but the dilatation can be carried out equally well by the mercury tube without the disadvantage of an abdominal operation.

In one case of mine Mr. R. P. Rowlands divided the sphincter longitudinally, as in Ramstedt's operation for hypertrophic pyloric stenosis in infants. The patient is still completely well three years after the operation. He was the only patient I have had, in whom the passage of the mercury bougie had not given sufficient relief to enable him to regain sufficient strength to carry on his occupation, but I expect that the larger bougie now in use would have cured him also. The

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[*] Part I., on General Considerations, appeared last week.

[†] From Messrs. Down Bros., St. Thomas's street, S.E.

seems rational enough, even if the alkali does not neutralise the acid formed by carbohydrate fermentation it can at least do no harm The idea that a dentifrice should be acid came from H P Pickerill, who stated that acid or sapid food substances caused a free flow of saliva of increased alkalinity, which is, perhaps, the ideal detergent agent He suggested that an acid dentifrice would act in a similar way, and this theory received considerable support In recent years, however, Pickerill's observations have been criticised by several observers, notably E C Kirk and F P Chillingworth, who point out that methyl orange, the indicator he used, is unreliable Chillingworth[3] came to the conclusion that an acid dentifrice does harm, since it forms an acid plug which seals up fermentable carbohydrate in any dental cavities and so promotes the extension of caries rather than its prevention It goes without saying that a properly designed tooth-brush and correct brushing are necessary in order that any dentifrice may act to the best advantage Cross brushing should be avoided, for even with a bland dentifrice it will eventually wear away the necks of the teeth But if the brush is worked away from the gums, and towards the crowns of the teeth, the interdental spaces are cleaned and the gums and necks are not injured Without accepting all the claims of the manufacturers it may be said that the dentifrice has a definite, if modest, place in dental hygiene, especially as nowadays the teeth are often irregularly placed, and the diet may lack the detergent elements which cleanse the mouth naturally by causing vigorous mastication

CELL POISONING BY CARBON MONOXIDE

THAT carbon monoxide has an effect on other substances present in living organisms than hæmoglobin was shown last year by Warburg, who found that the rate of oxygen consumption of yeasts and of a micrococcus was depressed by the presence of this gas In a recent letter to *Nature* Mr J B S Haldane states that he has extended these observations to the wax-moth, *Galleria mellonella*, and to the cress *Lepidium sativum* The behaviour of the moth in atmosphere containing as little as 2 per cent of oxygen is normal, but when the proportion is reduced to 0 8 per cent motion ceases if the other gas present is nitrogen (plus argon) When, however, carbon monoxide is the diluent, 16 per cent of oxygen is needed for normal behaviour and motion ceases at 8 8 per cent oxygen and 91 per cent carbon monoxide On admitting air recovery is rapid and complete, thus differentiating the action from that on hæmoglobin Cress seeds, which would germinate in atmospheres containing as little as 1 7 per cent of oxygen and grow poorly in 5 per cent, but almost at a normal rate in 10 per cent, in mixtures of oxygen and carbon monoxide did not germinate at all under 3 per cent of oxygen, only a few seeds opened at 7 per cent, and in 14 per cent growth was slow Whilst experiments showed that carbon monoxide was relatively less poisonous for cress than for moths or yeasts, Haldane concludes that probably "oxygen before it can be utilised for some at least of the oxidative processes in the cell, must combine with a substance possessing a lesser but well-marked affinity for carbon monoxide, these two gases combining with the same group in its molecule As this substance is found in higher animals and plants as well as bacteria and fungi, it is probably a nearly universal cell constituent" Warburg found that the compound produced, like carbon monoxide hæmoglobin, is dissociated by light These observations should be borne in mind in connexion with the more familiar immediate results of carbon monoxide poisoning The gas is likely to occur in any situation where carbon or its compounds, solid, liquid or gaseous is incompletely burned This may result not merely through inadequacy of air supply, but also whenever a flame is cooled unduly The New York State Department of Labour has called attention in *Industrial Hygiene* for February to the widespread incidence of this gas in works of all kinds In New York the air of 24 out of 31 garages contained carbon monoxide, whilst in 17 cases the percentage of this gas exceeded 0 1 per cent, which apparently is considered permissible, although it seems unduly high The blood of 29 out of 42 workers in garages yielded evidence of carbon monoxide short of the clinical symptoms of poisoning The danger of cellular poisoning arises also in connexion with the use in confined spaces of fire-extinguishers containing carbon tetrachloride, a liquid which, although very efficacious in extinguishing petrol fires, yields carbon monoxide in addition to phosgene, hydrochloric acid, and a variety of other poisonous products

MEDICAL REGISTRATION.

UNDER this title a paragraph has been circulated by one of the press agencies purporting to give the views of the Editor of THE LANCET on the scope of the General Medical Council and its penal powers One important newspaper immediately offered the Editor an opportunity of correction, and the agency has offered to take the same course It is unfortunate that publicity should have been given in a marked way to a wrong description of the functions of the General Medical Council and of the Council of the British Medical Association, while the words of the speaker, if accurately recorded, would have cleared up exactly the confusion

THE French Association of Anatomists has arranged to hold its meeting in London on April 11th to 13th, in cooperation with the Anatomical Society of Great Britain and Ireland The Congress will meet at University College About 150 members of the two societies are expected, and as the French Society includes members from Belgium, Italy, France, Holland, Switzerland, Spain, Portugal, Poland, and Czecho-Slovakia, the Congress promises to be an international one such as hitherto has not been held in Great Britain On the evening of the 11th a conversazione will be held at University College One of the most interesting features of the meeting will be the reception by Mr Henry S Wellcome in his Historical Medical Museum on Tuesday, the 12th, from 8 to 11 P M On the following evening a dinner will be held at King's College Arrangements have been made for the members of the Congress to visit Cambridge as the guests of Prof J T Wilson There will be a trade exhibit dealing with scientific appliances and other technical equipment for anatomical study

ROYAL MEDICAL BENEVOLENT FUND —The annual meeting of the members of this Fund will be held at 5 P M on Friday, April 8th, at 11, Chandos-street, Cavendish-square, London, W 1, when the officers and committee for the current year will be elected

THE LISTER CENTENARY —The centenary of Lord Lister's birth falls on April 5th, and on Monday, April 4th, the King will receive delegates at Buckingham Palace There will also be a reception by the Royal Society of Medicine in the evening The London programme for April 5th includes a reception by the Prime Minister in the large hall of the British Medical Association and a conversazione at the Royal College of Surgeons, whilst on April 6th there will be a memorial service in Westminster Abbey, followed by discourses at the Royal Society of Medicine, and a conversazione at the rooms of the Royal Society It is announced that the Listerian Society of King's College Hospital has been obliged to change the time of its celebrations from 8 P M on Monday, April 4th, to 3 P M on the same day All old King's men and their friends are invited At Glasgow the Centenary will be kept on April 1st, details of the arrangements have already been published in THE LANCET (March 19th, p 622) The Edinburgh celebrations will chiefly be held on July 20th, when they will coincide with the British Medical Association's annual meeting We hope to publish in our next issue a full programme of the arrangements of the following week

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[3] Brit Dent Jour, Nov 15th, 1922

11 months of the first year The first month's rate is much the hardest problem—it has been practically stationary there since 1880—but a recent slight drop suggests further possibilities even in these deaths In the South of England and in London the neonatal rate now approaches that in New Zealand, but as we go north large local increases still appear As to the rest of the first year even rural districts in the South of England compare unfavourably with New Zealand

Social Implications in America

To return to the American field study This was carried out in eight large industrial cities The live births within a given calendar year (in every case between 1912 and 1915), 22 967 in number, were followed up by visits to the home, and only those included whose histories could be traced till death or the end of the first year of life The large number of social and economic factors involved are clearly so closely interwoven that a complete unravelling is hardly to be expected Age, nationality, and employment of the mother, order of birth, type of feeding, economic status as measured by the father's wages, interval since the last birth and before the next pregnancy, and antenatal and postnatal care of the mother are the main factors considered. In weighing the effect of any one of these, two or three of the others are allowed for by calculating the " expected " deaths on the basis of these classifications An important point made with regard to artificial feeding is that it showed an apparently cumulative effect during the early months of life It was less practised in the lower than the higher earnings groups, but seemed to be associated with greater danger in the poorer families

Deduction from Home Experience

The findings of the two most nearly cognate recent investigations in this country [2] are not in entire agreement on all points with the American experience Miss Elderton, for instance, failed to find any evidence that factory employment of women leads to abnormal confinements, while prematurity and increased neonatal deaths appeared to be associated with employment of the American mothers We are inclined to accept her conclusion that it is never safe to apply the results reached in one district to another district as regards the effect of things so dependent on local conditions as housing and women's employment It may also be noted that where the same tendencies are found the different methods of analysis used by the American and English authors do not lend themselves to exact comparison of the *amount* of the association.

It is no depreciation of studies such as these to say that they leave us with still uncertain knowledge as to the balance between hereditary constitution and environment and as to the exact relative weight of the different causes and effects of poverty in determining the viability of the infant Broad lines of attack are well marked out in this country and elsewhere, and we have a long way to go yet in our worst districts before we reach the level that New Zealand has shown to be possible

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[2] The Relative Value of Factors Influencing Infant Welfare, by Ethel M. Elderton, Annals of Eugenics vol 1 1925 Study of the Data provided by a Baby Clinic in a large manufacturing Town, by Mary Noel Karn and Karl Pearson F R S 1922 both issued by the Galton Laboratory and published by the Cambridge University Press

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BIRMINGHAM GENERAL HOSPITAL—Discussing the decision to create a new hospital centre upon a site given by Cadbury Bros, at Edgbaston, the annual report of this institution states that Dr J G Emanuel, Mr J B Leathes, and Mr A. H Leaney, the house governor, are on the continent examining some of the most modern hospitals Until their report is available no decision upon methods of planning can be reached The Hospitals Council is working out a comprehensive contributory scheme

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PUBLIC HEALTH IN THE IRISH FREE STATE.

A TRIENNIAL SURVEY

THE first report of the Department of Local Government and Public Health in the Irish Free State covers the period from April 1st, 1922, to March 31st, 1925, and deals with other branches of local government, such as Parliamentary elections and upkeep of roads, as well as with the public health Health insurance, lunacy, and the registration of births, deaths, and marriages are to be the subject of separate reports By recent legislation rural district councils and boards of guardians, with the exception of those in County Dublin, have been abolished and their duties transferred to county councils The current expenditure on poor relief is now, as a rule, spread evenly over the county area Public health expenditure and road maintenance are treated in a similar manner

Administration

Section 1 deals with general local administration. Under an Act, which became law in March, 1923, the Minister is empowered to dissolve local authorities which are not duly and effectually carrying out their duties, and to appoint in their place one or more Commissioners A more recent Act prescribes that the period of office of the Commissioners shall not exceed three years after which a fresh election of members of the local authority will be held The list of dissolved authorities includes several counties, the Dublin Corporation and Board of Guardians, and the Cork Corporation The Minister records that all the Commissioners have proved worthy of the trust placed in them

Infectious Disease

The public health section, which takes up about 18 of the 210 pages in the report, shows that the notification of infectious disease in many districts had fallen into disuse In the urban districts there were three cases of typhus in 1923–24, and one in 1924–25, while in the rural districts there were 59 cases in 1923–24 and 49 in 1924–25 The chronic area of typhus infection consists of a limited number of districts on the Atlantic seaboard, " where adverse social conditions, poverty, congestion and bad housing continue to persist " A considerable outbreak of enteric in Tralee was traced to ice-cream, and two outbreaks of enteric in Dundalk were traced to milk In the early months of 1924 diphtheria was unduly prevalent in the county borough of Cork In view of the prevalence of small-pox in England, medical officers of ports have been warned to be on the look-out and vaccination authorities have been advised to be active One case of small-pox was introduced from London in November, 1923, but there was no spread of infection

Temporary measures were taken in 1922 to meet the scarcity of qualified public analysts, compliance with the full standard of technical qualifications has now been resumed Whole-time county medical officers of health and veterinary officers are to be appointed

Maternity —School-children

The county and county borough councils were reminded by circular letter in June, 1923, of their duties as supervising authorities of midwives, and reference is made to the fact that the mortality from puerperal fever and childbirth is disproportionately high in Ireland, and that practically all cases of blindness from birth are due to want of knowledge and skill on the part of those in attendance on the mother and infant The prohibition of unqualified midwives became operative on Jan 1st, 1924, and it is urged that in every notified case of puerperal fever there should be careful inquiry as to the character of the attendance A 50 per cent national grant is operation demonstrated the complete absence of any hypertrophy of the sphincter, which was 1½ in in length and constituted the whole of the intra-abdominal part of the œsophagus

Diet

The prolonged retention of food in the dilated œsophagus caused by achalasia of the cardia and the frequent production of irritating material as a result of fermentation give rise to catarrh and occasionally more severe inflammation of the mucous membrane However complete the cure of the achalasia may be, the hypertrophy of the œsophageal walls remains, but the dilatation gradually becomes less, so that the redundant mucous membrane is thrown into deep folds If catarrh is also present, food tends to be retained between the rugæ and the œsophagitis is likely to persist It is therefore necessary to give the patient a diet containing no pips, skins, or vegetable fragments which would be likely to be retained, he should chew his food thoroughly, eat slowly, and finish each meal by drinking half a pint of water or milk in order to wash the last traces of food into his stomach During the first week of treatment it is advisable to give him nothing but four feeds a day, each consisting of one pint of milk, which may contain a beaten-up egg, this is generally quite sufficient to cause a gain in weight of 2 or 3 lb in an emaciated patient

Many patients learn to eject the contents of their dilated œsophagus voluntarily Anyone who can do this should be encouraged to evacuate the œsophagus half an hour after each meal, and then drink half a pint of water and evacuate at once as much of it as possible As a rule a small quantity of food and a good deal of mucus are still present during the first few days of treatment, but the quantity of each gradually gets less When there is no longer any residue to evacuate and no water can be returned, the œsophagitis as well as the achalasia of the cardia can be considered to be cured In very long-standing cases with severe œsophagitis, if the patient is unable to evacuate his œsophagus voluntarily, it should be emptied and washed out with a rubber tube attached to a Senoran's evacuator half an hour after each meal, until all signs of œsophagitis and œsophageal retention have disappeared

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Special Articles.

THE CAUSES OF INFANT MORTALITY

A COMPARATIVE STUDY

The United States Children's Bureau has long been occupied with comparative investigations into infant mortality, the results of which have appeared in separate reports and scattered papers published during the last few years Dr R M Woodbury sums up the chief results in a handy volume[1] now before us As a background to these field inquiries he gives a short survey of the general infant mortality in the birth registration area of the United States and also in New Zealand The infant mortality-rate for New Zealand (white population only) is well known to be lower than that of any other country How much of this advantage is due to climate, virility of the race, comparative absence of large industrial undertakings, and how much to the legislative and educative measures in which New Zealand is much to the fore, is not easily determinable What is, however, clear, is that the climatic factor can easily be exaggerated, and that the large differences observed from place to place either between or within countries are within the power of man to prevent

Two Main Causes

The main causes that contribute to these differences are respiratory disease and diarrhœa, and the variations from year to year (which might be taken as some [illegible] asure of climatic and other extra-human causes) of me a [illegible] er are much greater than of the former Dr the latter of [illegible] is concerned with comparisons with his Woodbury the [illegible] we may digress a little to consider how own country ; spe[illegible] It was noted in these columns a we stand ourselves exac[illegible] ummer diarrhœa is not the cause few weeks ago that su[illegible] in Scotland This must not of high infant mortality ratio Scottish rate from diarrhœal be taken to mean that the [illegible] n the English This used infant mortality is lower than [illegible] ow, as is shown by the to be the case, but is not so [illegible] The [illegible] e are indebted to the accompanying graph for which 50 [illegible] for Scotland and General Register Office th[illegible]

The close approach of the curves m, [illegible] d the decline in this country in the last few years annual, [illegible] ntable nature both may be taken as a sign of the prev[illegible] ses of climatic of the mortality from this cause in spite of [illegible] ular course and other epidemiological factors The sec the [illegible] d Wales of the infant mortality-rate in England and [illegible] ses to differs considerably from one group of ca[illegible] another, but in most groups the most striking feature is the steep decline since about 1900

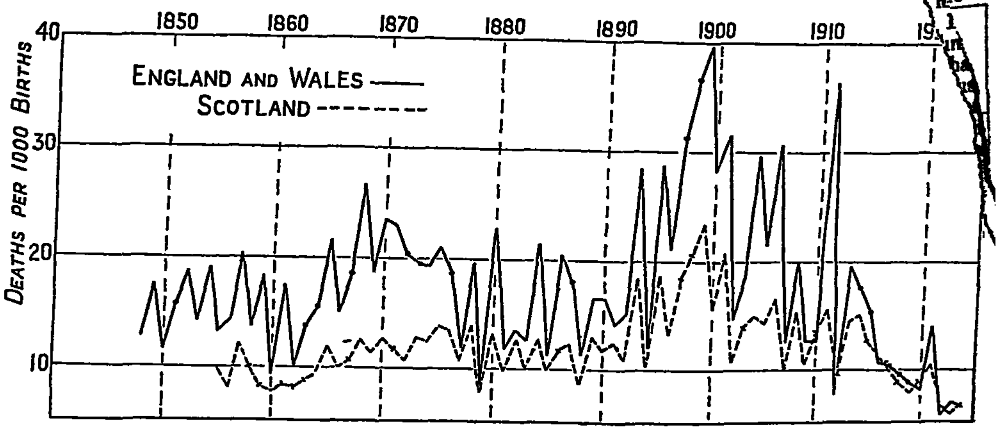

Chart showing the comparative number of deaths from infantile diarrhœa and enteritis in England and Wales, and Scotland over a period of 75 years

The New Zealand Example

Dr Woodbury gives an account of the intensive preventive work that is being developed in New Zealand, and points as a model to the urban area of Dunedin, which with some 1300 yearly births had a perfectly clean sheet as regards infant diarrhœal deaths for three successive years from 1922 to 1924. In New Zealand the problem is fast reducing itself simply to that of deaths in the first month of life, for while in 1924 out of every 1000 births 24 babies died n their first month, only 16 died in the remaining

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[1] Infant Mortality and its Causes, by Robert Morse Woodbury, Ph D, formerly Director of Statistical Research, United States Children's Bureau Baltimore The Williams and Wilkins Company, 1926 Agents Baillière, Tindall and Cox, 8, Henrietta-street, Covent Garden, London, W C 2 Pp 204 16s

SMALL-POX AND VACCINATION.

AMERICAN VIEWS AND PRACTICE.

IN a recent article[1] Surgeon J. P. Leake, of the United States Public Health Service sets out to answer a number of questions about small-pox, which he describes as the disease most completely preventable by public health measures He selected the questions because they are frequently asked by medical men, and though some of the answers are necessarily tentative, they deserve wide publicity

Technique of Vaccination

The best method of vaccination is, he considers the following —

> The skin is cleansed with acetone and is inoculated by shallow tangential pricking with a needle through a drop of small-pox vaccine covering an area not greater than one-eighth of an inch in diameter The needle must be new sharp and sterile It is not thrust into the skin but is held parallel to it with the forefinger and middle finger of the right hand above the needle and the thumb below, the needle pointing to the operator s left.
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> The side of the needle point is pressed firmly and rapidly into the drop about 30 times within five seconds the needle being lifted clear of the skin each time. This rapid to and fro motion of lifting the needle and pressing it against the skin should be perpendicular to the skin and needle, and not in the long axis of the needle. The point is not driven into the skin, but during each descent the elasticity of the skin will pull a fraction of an inch of the epidermis over the point of the needle, so that the vaccine is carried into the deeper epithelium (cuboidal prickle-cell layer), where multiplication takes place most easily.
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> If the skin has not been unduly rubbed in cleansing and if the motion is entirely perpendicular to the needle no signs of bleeding will occur and all evidence of the punctures will fade out in less than six hours Immediately after the punctures have been made the remaining vaccine is wiped off the skin with sterile gauze and the sleeve pulled down, the whole operation of puncturing and wiping taking less than ten seconds
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> With strong vaccine a single pressure not infrequently gives a "take." When 30 pricks are made the percentage of "takes" is as high as with any other safe method For primary vaccinations where the mildest possible 'take" is desired, and where the attempt may be repeated if needs be the number may be reduced to ten or even to one prick.

The disadvantages of the method, says Dr. Leake, are (1) that the proper pressure may not be easily gauged at first, and (2) that the area covered may be too large If the needle is held at a tangent to the curve of the arm and if the direction of motion is quite perpendicular to the needle, it is difficult to make the rapid pressures too firmly. Motion from the wrist with the arm held rigid is usually more accurate than whole-arm motion The advantages of the method are (1) its mildness and painlessness, (2) its rapidity, (3) the fact that no control site is necessary, and (4) the immediate wiping off of the vaccine which makes the patient realise that no dressing is needed The ideal after-treatment is to keep the site cool and dry, so as to promote rapid formation of a firm crust and to avoid maceration and rupture of the vesicle A fold of sterile gauze may, if necessary, be attached to the garment but not to the skin Occasionally a severe 'take may require a few days of antiseptic dressings and primary vaccinations should be inspected about the fourteenth day to insure that desiccation is proceeding properly

As regards *site* Dr. Leake objects to vaccination on the leg because the leg is more exposed to moisture and contamination than is the shoulder On account of blood stasis, primary leg vaccinations in adults often heal slowly and cause temporary disability Vaccination scars on the arm leave only a 'sanitary dimple,' if performed as recommended.

Other methods—Any method is satisfactory which ensures that the vaccine is deposited in the deeper layers of the epidermis over an area not more than one-eighth inch in diameter, and avoids poulticing the developing vesicle. Intracutaneous injection of diluted vaccine virus is painful and even in good hands will often be subcutaneous, which makes it hard to interpret the results

Reactions following Vaccination

Dr Leake states that with a reaction of immunity which indicates full protection against small-pox, the broadest redness is reached and passed in 8 to 72 hours after vaccination With the accelerated or modified vaccination or vaccinoid, which indicates partial immunity, the broadest redness is reached and passed in three to seven days after vaccination With a typical primary vaccination indicating absence of immunity to small-pox prior to this vaccination the zone of redness rather narrow from the third to the seventh day begins a sudden spread about seven days after vaccination and reaches its broadest diameter in eight to fourteen days after vaccination rapidly disintegrating and disappearing thereafter These three types merge into each other all gradations being found in practice.

> "The prompter the maximum the higher is the immunity. Vesicles are formed in vaccinoid and typical vaccinia reactions but not with the reaction of immunity . . All three of the types are successful vaccinations provided the small-pox vaccine was fresh and strong All three not only indicate the grade of the previous immunity but increase the immunity as well All other results where proper technique was used indicate deficient vaccine Every vaccination should give a reaction."

The presence of a red slightly raised area at the site of vaccination 48 hours after vaccination is performed, does not necessarily indicate that the person vaccinated was immune to small-pox because:

(*a*) The vaccine used may have been weakened by time or temperature

(*b*) Accelerated reactions (vaccinoids) usually give on the second day the appearance described above which is similar to that of a reaction of immunity. Thus, even if an early reaction is seen observation about the fifth or seventh day is necessary to determine whether the reaction was that of immunity, with its maximum diameter of redness reached in less than three days, or an accelerated reaction (vaccinoid) with later maximum Even a vaccinoid reaction however, indicates some immunity.

(*c*) The trauma due to the mere mechanical act of vaccination may cause enough irritation so that the redness persists at the time of the early 48-hour observation independently of any specific reaction The "multiple pressure" leaves no traumatic reaction after six hours to obscure faint reactions of immunity.

Thus to sum up, the grade of immunity is not indicated by the amount of reaction, but by the *time* within which the local area of redness and infiltration of the skin reaches its maximum and begins to subside The quicker the maximum is reached and passed the higher is the degree of immunity indicated. The *amount* of the reaction depends on the skin reactivity of the person vaccinated and not on the grade of immunity. Probably any reaction which is marked within 24 hours will reach its maximum in less than 72 hours and therefore would constitute an immune reaction, but some of the most highly immune persons give the smallest reactions

A failure to take does not indicate protection for differences in skin receptivity may occur independently of the true immunity. For example very young infants are not as easily vaccinated as older children and some individuals may be resistant to a lot of vaccine which 'takes" generally in other individuals without, however, being immune against small-pox

Treatment of Sequelæ

Where secondary infection occurs the vesicle becomes purulent and extends As soon as a fair-sized areola has formed the maximum immunity has been attained and the use of an antiseptic will not diminish available for the provision of health visitors and about 130 district nurses are also engaged in this work County boroughs are being urged to formulate schemes of school medical service, but this matter is not being pressed in the case of counties pending the appointment of county medical officers of health A school medical service has been begun in the county borough of Cork, where the medical officer has made a general survey of the physical condition of 11,296 children attending 27 elementary schools, of whom 69 9 per cent were found to have defective teeth, 22 5 per cent defective eyes, 5 8 per cent defective nose and throat, 1 8 per cent defective ears, 9 4 per cent minor ailments, 11·8 per cent were unclean, and 8 per cent showed malnutrition Clonmel has also inaugurated a school medical service, including an eye specialist and a dentist, with the consent of the Tipperary County Council During the year ended March, 1925, approved arrangements for the provision of school meals were in force in 16 urban districts, including Dublin and Cork

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[1] Public Health Reports, vol xlii, No 4 Jan 28th, 1927

Tuberculosis —The Blind —Venereal Disease

Approved tuberculosis schemes have been adopted in 22 counties and in Dublin and Waterford The recognised sanatoriums number nine, with an aggregate of 815 beds, but these are not all restricted to early cases Surgical cases of tuberculosis are admitted to 52 institutions, largely general hospitals, and the Irish Sisters of Charity have established a hospital with 70 beds in Dublin County for the treatment of surgical tuberculosis in children The total number of deaths from tuberculosis in the Free State during 1924 was 4582, and the patients receiving treatment under approved schemes numbered 10,131 It is thought that when the treatment scheme has been fully developed the cases treated will be from eight to ten times the number of deaths

There are four principal agencies for the welfare of the blind which receive Government grants, three of them in or near Dublin and one in Cork The schemes which county or county borough councils are required to formulate for the welfare of the blind have not yet been put into operation in any county, but the Commissioners for Dublin have adopted a scheme which came into operation in April, 1925

The schemes for the treatment of venereal diseases have so far only been resumed in Dublin County Borough and in Dublin, Kildare, and Wicklow counties During the year ended March 31st, 1925, the total number of patients dealt with at the V D clinics was 3174 These patients made 25,991 out-patient attendances and accounted for 7591 days of residential treatment in the hospitals

The section of the report devoted to poor relief shows that county hospitals have now been provided in nearly all the counties It is claimed that the placing of the local administration of the Poor-law on a county basis has relieved the burdens of the ratepayers

Dispensaries

Section 4 deals with medical charities, and it is therein shown that in March, 1925, there were 588 dispensary districts with a staff consisting of 634 medical officers, 30 apothecaries, and 656 midwives Since the abolition of the boards of guardians the distribution of free tickets has been carried out by members of the County Board of Health, home assistance officers and wardens, and steps have been taken to prevent the abuse of the free tickets

The report states that considerable progress has been made in determining scales of salaries for dispensary medical officers, and by March 31, 1925, scale salaries on a county basis were operative in all but seven counties The following are the average salaries of dispensary medical officers at the several periods mentioned —1904, £109, 1914, £130; 1924, £251 The real increase is trivial when one compares the cost of living now with what it was in 1914 and 1904 More satisfactory is the fact that dispensary medical officers are now entitled to four weeks' annual vacation, their substitutes being paid out of the rates The Report goes on to state that, in spite of the disturbances some years ago and the resulting difficulties of transport, the dispensary medical officers and midwives performed their duties to the sick poor with efficiency and sympathy

Housing

In Section 5 it is shown that the price of a five-roomed house is about £750, that the rent of such a house should be 8½ per cent of the capital cost, that the workman cannot pay more than one-sixth of his wages, and that consequently to secure an economic rent the capital cost should be twice the annual wage. This calculation indicates the considerable margin which must be provided from public sources, and one of the first acts of the new Government was to set aside £1,000,000 for urban housing Municipal authorities are asked to raise a sum of money by a 1*s* rate, secondly to obtain from local banks or other sources a short period loan equal to three times the produce of the aforesaid rate That having been done, the Government will make a contribution double the amount raised locally Thus under the scheme the municipalities will raise £125,000 from rates, £375,000 by loans, the Government will add £1,000,000, and there will thus be available £1,500,000 for the erection of 2000 houses at a total all-in cost per house of £750 Out of the 94 local authorities in the Free State, 71 have adopted housing schemes, and the building costs of the houses have averaged about £600 and £570 for five- and four-roomed houses respectively The houses are, as a rule, sold on the tenant-purchase system, with a maximum period of 40 years In the Dublin scheme the purchasers pay from 15*s* to 16*s* 6*d* weekly to cover purchase money, rates, insurance, and all other charges

Section 17 deals with the scheme of combined purchasing of the commodities required by local authorities By this scheme many advantages are obtained Much economy results from the adoption of uniform standards and patterns A list given in the report shows that the price of an article in the Government contract may be less than half of a similar article in a local contract made in 1922 The small purchaser under the new system buys under the same favourable terms as the large Under this scheme certain articles have been manufactured in Ireland for the first time

The Report, as a whole, is evidence of a great variety of work carried out with success in difficult conditions It is to be hoped that, in future issues, it will be possible to furnish a greater volume of statistical information, even if the Report is not allowed to swell to the bulk of the pre-War Reports of the old Local Government Board

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ROYAL INTEREST IN HOSPITALS —The sympathetic interest taken by the Royal Family in all matters relating to hospital has been further illustrated Recently the Queen laid the foundation-stone of the Nurses' Home at the Metropolitan Hospital, Kingsland-road This institution, which has 137 beds, sets aside two wards, with Kosher kitchens for Jewish patients, and there is also a children's ward. Hitherto the 75 sisters and nurses have been inconveniently and uncomfortably lodged in detached and dilapidated houses full of passages so dark that they have to be lighted continuously —Princess Mary attended a reception given by the Lady Mayoress at the Mansion House in support of an appeal for £100,000 made by the British Hospital for Mothers and Babies at Woolwich It is desired to add a second wing to the present buildings with four large and four single-bed wards, two operating theatres and two nurseries, and to build a nurses' block with 30 bedrooms and dining and lecture halls, and a students' block with accommodation for 50 students It is hoped then to offer a full two years' course in midwifery, free to at least ten students The hospital, founded in 1749, was the first maternity hospital in London, and was also the first to train students in midwifery —Princess Arthur of Connaught has opened an extension of the Nurses' Training Home of the Essex County Nursing Association, Leytonstone and ultra-violet light treatments The dental surgeon visits weekly Among the works in progress are the installation of modern cooking appliances and the preparation of a convalescent block The purchase of Kinnaird Estate and Kinnaird Hill Farm has supplied the hospital with two-thirds of its milk and 2500 eggs as well as other farm produce and has provided occupation for many patients Infirm, sick, and recent male patients are nursed by women Eleven of the staff gained their M P A certificate during the year.

The *Aberdeen Royal Mental Hospital* records a satisfactory year of work in 1926 with an average of 800 patients resident including 33 voluntary boarders There was a recovery-rate of 31·29 per cent , and a death-rate of 6 65 per cent During the summer four large verandahs for open-air treatment were completed and later the electrical department was fully equipped with X ray, diathermy, and mercury-vapour apparatus Considerable benefit seemed to follow the sunlight treatment. 254 patients were seen during the year by the visiting dentist In the craft department a great variety of work is undertaken, and an operating theatre has been equipped

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 12TH 1927.

Notifications—The following cases of infectious disease were notified during the week —Small-pox, 412 (last week 529), scarlet fever 1205 diphtheria 906, enteric fever 36, pneumonia, 2379 (last week 3375), puerperal fever 37, puerperal pyrexia 123, cerebro-spinal fever 17; acute poliomyelitis 11 encephalitis lethargica 32; dysentery, 7, ophthalmia neonatorum 147 No case of cholera plague or typhus fever was notified during the week

The drop in small-pox returns is due principally to the much smaller number notified (176) from the County of Durham 110 cases were reported from Wales and Monmouth, the position on March 14th being that 363 cases of small pox had been ascertained in Monmouthshire 288 of these belonging to Abersychan and 18 to Blaenavon in the Eastern Valley, while 27 came from Abercarn and the Western Valley A case is reported from Abergavenny Rural District but otherwise the epidemic is still confined to the industrial valleys On the date mentioned 99 cases had been removed to isolation hospitals belonging to various district councils

Deaths—In the aggregate of great towns including London there were no deaths from small-pox 1 (0) from enteric fever 72 (1) from measles, 8 (1) from scarlet fever 81 (14) from whooping-cough 43 (10) from diphtheria, 34 (10) from diarrhœa and enteritis under two years and 572 (49) from influenza The figures in parentheses are those for London itself The Registrar-General remarks that influenza which was increasing almost uniformly in different parts of the country until the week ended Feb 5th is now decreasing generally except in Wales, and it would appear that the worst phase has been passed For the week ended March 19th the influenza deaths show further substantial diminution, the figures being for the great towns 342 for London 33 Manchester 27, Birmingham 19, Newcastle-on-Tyne 15, Liverpool 14 and Wigan 13

Influenza in Scotland—The Scottish Board of Health reported on March 16th that in most parts of Scotland the influenza epidemic was definitely on the wane except in the counties of Fife and Ayr and in Orkney The source of infection in Orkney appeared to be a farmer who had recently returned from the south evidently in the last days of the incubation period He fell ill within 24 hours of his return and was visited by a considerable number of other farmers seeking information as to his business south All of them, with one exception subsequently fell ill with influenza, In a few places on the mainland outbreaks of influenza and of whooping-cough occurring at the same time had interfered gravely with school attendances for a number of weeks sometimes necessitating the closing of schools The bulletin of March 23rd notes the final strongholds of the epidemic in Fife and the extreme south-west corner of the country Elsewhere the epidemic is rapidly dying out

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Comdr D D Turner is placed on the Retd List with the rank of Surg Capt

ROYAL NAVAL VOLUNTEER RESERVE

Prob Surg Lt R J Matthews to be Surg Lt

ROYAL ARMY MEDICAL CORPS.

Lt -Col and Bt. Col J A. Hartigan is apptd Hon Physician to the King, vice Maj -Gen. O L Robinson late R A M C. (retd)

Lt W V Harke late T A., Res of Off , to be Temp Lt W T Baker to be Temp Lt

TERRITORIAL ARMY

Lt A Badenoch to be Capt (Prov)

Lt D A Davies late Welsh Guards S R *to be Lt*

2nd Lt D J MacMyn, from the Gen List (unposted) T A , to be Lt

REGULAR ARMY RESERVE OF OFFICERS

Col A H Morris late R A M C having attained the age limit of liability to recall, ceases to belong to the Res of Off

ROYAL AIR FORCE

A L. St A McClosky is granted a short service commission as a Flying Officer for three years on the active list and is seconded for civil employment at the Princess Alice Memorial Hospital Eastbourne

R Thorpe is granted a short service commission as a Flying Officer for three years on the active list

Flight Lt V. R Smith is promoted to the rank of Squadron Leader

Flying Officer D B Smith is promoted to the rank of Flight Lt

Temp Lt P M Margand (General List Army, Dental Surgeon) is granted a temporary commission as a Flying Officer on attachment to the R A F.

INDIAN MEDICAL SERVICES

Majs G E Malcomson H W Acton V B Green-Armytage A N Dickson A. J H Russell R E Wright Dewan Hakumat Rai F A. Barker, and A. N Thomas to be Lt -Cols

Lt. T J Davidson to be Capt

Maj J J Harper Nelson has been appointed Professor of Medicine King Edward Medical College, Lahore Lt. A P Lopez has been appointed to act as Civil Surgeon Jessore Maj S D Billimoria has been posted for Civil Duty under the Punjab Government Lt.-Col D Heron has been posted as Residency Surgeon Mewar, and Dr I E Sweeby has been posted as Junior Assistant Surgeon and Quarantine Medical Officer Bushire The services of Lt -Col J Morison Assistant-Director Haffkine Institute Bombay have been placed at the disposal of the Government of Burma and the services of Maj E S Phipson, Maj A. H. Harty and Capt. J M Shah have been placed at the disposal of the Government of Bombay. Capt. H. B Rosair has been confirmed as Superintendent, Central Prison, Fatehgarh consequent on the retirement of Rai Bahadur Lala Mithan Lal Col H Ainsworth has been nominated by the Governor to be a member of the Bihar and Orissa Legislative Committee and Lt -Col I M Macrae has resigned his membership Lt.-Col W O Murphy has become Colonel vice Col J H MacDonald retd Capts H. A Khan and Malik Anup Singh have been created Majs Lt -Col G Hutcheson, civil surgeon United Provinces has been appointed Inspector-General of Civil Hospitals and Prisons, Assam, in succession to Col C H Bensley Col Hutcheson on return from leave, has also been appointed special officer in connexion with the Leprosy Dispensaries Scheme Lt -Col M. N Chaudhri retires from the service

ROYAL FREE HOSPITAL—For the first time this hospital has a credit balance, which amounts to £16 000. The whole of the money is, however, needed to pay off the debts of previous years

A NEW CLINIC AT PAISLEY— On Saturday last Princess Mary opened the Russell Clinic at Paisley, which has been given by Mrs Agnes Russell in memory of her two brothers The clinic is divided into two portions, one under the supervision of the Town Council dealing with tuberculosis maternity matters &c and the other under the control of the Education Authority The building contains a gymnasium and baths for cripple children dental rooms, X ray and ultra-violet ray apparatus and all the most modern arrangements for the curative treatment of juvenile ailments.

the protection In general, temporary moist dressings are preferable to powders or ointments

True generalised vaccinia practically never occurs, though morbilliform or erythematous eruptions are common about the time of the maximum reaction They disappear without treatment

Times of Vaccination and Duration of Immunity

Vaccination of infants, says Dr Leake, is attended with less general reaction and fewer complications than vaccination of older children It is, therefore, best done as soon after birth as practicable, preferably before teething There are four advantages to be gained by early vaccination (1) the "take" is apt to be mild ; (2) it tends to make the secondary vaccination, required at school age, a much less serious affair than if the school vaccination were primary, (3) protection against small-pox is gained for the pre-school years, (4) the scar of an infantile vaccination fades more completely than scars of primary vaccinations performed later

The immunity afforded is lost by different individuals at different rates Some need to be vaccinated more often than once in five years to maintain full protection, others may be vaccinated less frequently than once in 20 years and still maintain high immunity A primary vaccination with one successful revaccination, or even a single successful vaccination, will, as a rule, protect throughout life from the milder forms of small-pox, but this is far from being true in the severer outbreaks Second attacks of small-pox are rare, but do occur If there is danger of exposure to a severe form of small-pox, all persons who have not been vaccinated within one year successfully—that is, with vaccine known to be of full potency—should be vaccinated Successful vaccination performed on the day of exposure to infection will almost always give complete protection against small-pox, and vaccination up to a few days before the onset at least makes the attack milder than it would otherwise have been Vaccination during the few days before onset will allow the vaccination and small-pox eruption to develop simultaneously without either influencing the other

Epidemiology

In conclusion, Dr Leake points out that outbreaks of small-pox occur of all grades of severity, some with a mortality of 70 per cent among those attacked and some with a mortality of 0 01 per cent

"Since 1896 a mild form has been increasingly prevalent in the United States and countries in communication with the United States, having a fatality of about 0 1 per cent among the unvaccinated The strains of the disease present just previously had been much more severe, and from time to time outbreaks are now occurring with a fatality-rate of about 30 per cent in the unvaccinated Each of these strains in general breeds true to its respective type, and mild cases contracted from severe give rise in turn to severe nd fatal cases There is no definite grade of severity or of fatality that we can consider characteristic of small-pox, and it is probable that almost all of the epidemics called "alastrim," &c , have been mild forms of small-pox All forms of small-pox immunise against each other and all may be prevented by the same vaccination Exposure to a severe form is much more likely to give rise to infection than exposure to a mild form and it takes a higher grade of vaccinal immunity (more recent vaccination) to protect against a severe strain than against a mild strain

In moderately well-vaccinated communities, such as Germany, epidemics of mild type are entirely prevented, and outbreaks of severe type much diminished On the other hand, in poorly vaccinated communities, where isolation is nevertheless practised, such as England and the greater part of the United States, mild strains spread more diffusely than severe because they are not taken so seriously by those attacked nor by the public at large, and because the attack is not severe enough to keep the patient in bed and isolated The mildness of the form of small-pox commonest at present is one reason for endeavouring to make preventive vaccination as harmless and as mild as possible "

Dr Leake closes a valuable summary by pointing out that epidemics cannot be stopped by isolation without vaccination

Public Health Services.

MENTAL HOSPITAL REPORTS

Reports of work done last year in Scottish Mental Hospitals are reaching us with commendable promptitude

The *Royal Edinburgh Hospital*, Morningside, is always in the van of progress, and its 867 patients have every possible opportunity of recovery The great majority of them are on a voluntary basis, and the medical superintendent voices his protest at the ridiculous law which makes it a misdemeanour to treat voluntary patients in rate-aided institutions "Strange as it may seem," he remarks, "the existing Lunacy Laws . seem to have been devised with the perverse object of obstructing anyone desiring to obtain medical relief . . No one can be admitted to a public mental hospital until his disease has become thoroughly established or his conduct has become a public nuisance or a scandal Even then he is not permitted to receive treatment till his application for admission has been dealt with after the manner of the detention of a criminal " All concerned in this work will agree with his dictum that "such a method of treating a sick person and of handling a question of public health is cruel and an abomination to anyone inspired by medical sentiments and ideals " An outstanding event of the year at Morningside was the opening of a country nursing home for patients with nervous ailments For the poorer patients the managers have converted a block into a psychopathic hospital for 50 people, this is almost ready for use Very shortly the building of a new out-patient wing will be commenced, here it is hoped to hold a free daily psychiatrical clinic The mental out-patient clinic at the Royal Infirmary has been attended by 180 patients since it was opened 12 months ago, and is doing inestimable work in the homes of its patients as well as within the infirmary building The occupational therapy department continues to perform invaluable services, while the cinematograph and wireless often excite interest in apparently hopeless cases

The *Glengall Hospital* at Ayr houses 600 patients, and showed a recovery rate for 1926 of 36 per cent men and 40 per cent women, with a death-rate of 14 per cent The most notable feature among the new admissions was the improved standard of general health—the best ever recorded—while the proportion of senile cases dropped from 20 per cent to 7 per cent. The death-rate from general paralysis of the insane was remarkably high—45 per cent men and 9 per cent women The medical superintendent ascribes the record increase to greater sexual incontinence following over-reliance on antisyphilitic treatment and the use of contraceptives There were only two deaths each from cancer and tuberculosis Apart from mild epidemics of measles and gastro-intestinal catarrh, the general health of the community was good A number of patients had parole within and beyond the grounds Five nurses and four attendants obtained their M P A certificate during the year

The *Stirling District Mental Hospital* had a slight increase in the number of inmates (850) during the year ending May, 1926 The board is also responsible for 102 boarded-out cases. 144 mental defectives, and 82 patients in Poor-law institutions Twelve voluntary patients were admitted during the year, and eight of them were rate-supported There was a recovery-rate of 39 3 per cent and a death-rate of 11 7 per cent Twelve of the fatal cases were general paralytics Twenty-one patients were sent out on trial and all were able to stay at home There were no epidemics The new reception hospital is in use for recent cases ; operating and dental rooms have been equipped, and apparatus installed for X ray, high frequency, method of the uterus growth An experience of several years has shown that the growth test runs parallel with the clinical action On the other hand, the œstrus test discovered by Allen and Doisy, and on which the interest of the scientific world is just now focused, is a new feature. Its parallelism with the clinical action has not yet been demonstrated, and it would be premature to standardise ovarian preparations exclusively by that method, the more so as authors do not agree as to the real interpretation of rat or mice units Laqueur considers the proœstrus stage as typical, while others consider only the final stage (where cornified cells dominate the picture) as a positive reaction Under these conditions it is clear that enormous differences exist in the appreciation of the value of preparations Furthermore, the number of such units that are necessary to exhibit a therapeutic effect has not been determined Another point is that the question of the unity or plurality of the ovarian hormones is not yet cleared up Certain authors assume the existence both of an œstrus hormone and of a growth-promoting hormone, others advance the opinion that both hormones are identical Laqueur points out that his œstrus hormone is inactive when administered by the mouth, and from the fact that other ovarian preparations exhibit an action when administered internally he deduces the presence of other hormones This shows sufficiently that considerable confusion prevails on the subject Apart from the fact that Sistomensin is standardised by the uterus growth method, it may be stated that it also produces the œstrus test Consequently we feel bound to contradict the statement that none of the commercial material obtainable in Great Britain produces œstrus when injected into female rats

In conclusion, may we state that we feel justified in asking why these inaccurate statements should be made in connexion with the particular product, for the process of extraction of which we are the patentees —We are, Sir, yours faithfully,

SOCIETY OF CHEMICAL INDUSTRY IN BASLE,
(Signed) J BRODBECK,
G ENGI

Basle, March 16th, 1927

THE PENALISATION OF THE TUBERCULOUS

To the Editor of THE LANCET

SIR,—The ventilation of this subject is overdue If one pauses to consider the advances in the treatment of tuberculosis which have been made during the last 30 or 40 years one must admit that the benefits of treatment, such as they are, have been brought about by individuals who have themselves suffered from tuberculosis I may mention in this particular two names, those of Saugman and Dettweiler I cannot say much about the conditions in this country because the persons concerned are still alive, but certainly the first and the best-run sanatoriums in this country were started by persons who had themselves been afflicted with this disease, in some cases, as I happen to know, very severely The faults of existing public sanatoriums are due largely to management by persons who know nothing first hand of this insidious malady The first requisite for a person who has the running of a sanatorium is surely that he should believe that he can cure his patients, and if this is so it follows that anyone who rejects, as a sanatorium doctor, a person who has been treated successfully for tuberculosis should not be allowed to treat tuberculosis If tuberculosis authorities will not employ their ex-patients, who can be expected to do so? And if they are to be debarred from getting employment, what is the use of treating them? I do not imply that doctors should combine an attempt to cure themselves with an appointment of any kind, I am referring to those who have taken the trouble to get well Such persons should not have to hide their health record from committees and the like

I am, Sir, yours faithfully,

March 21st, 1927

ERADICATION

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

DISEASES OF ANIMALS BILL

MR GUINNESS, Minister of Agriculture, in moving the second reading of the Diseases of Animals Bill said that Clause 3 would allow the slaughter of imported animals at the port which were found to be suffering from such a disease as tuberculosis on the order of an official of the Ministry of Agriculture He believed that this power was necessary, and he thought that the House would agree, when he told them that in one year they had 80 cows brought in with indurated udders, a very dangerous form of tuberculosis infection

MR BUXTON thought that the Minister was quite right to lay emphasis on the question of tuberculous cattle It was only logical now that they were beginning to deal effectively with tubercular milk that the efforts of local authorities and the Ministry should be supported in regard to the control of importation But he hoped that the efforts would be completely and solely aimed at the protection of public health Nothing was more important than a clean milk supply, and he hoped that the Bill would help in that direction

MR A V ALEXANDER said that local authorities in all the industrial areas were urging either that the Government should alter the amending Act of 1922 and make it compulsory on the Minister to admit cows, or that the Minister should take steps to make an order under that Act so that they could make up the loss to herds caused by slaughtering through the importation of healthy cattle from Canada

MR GUINNESS said that though it was proposed to take powers to deal with tuberculous animals at the ports it was not intended to make any amendment of the Act of 1922 as that would be quite outside the scope of this Bill

MR ALEXANDER said that it was true that the Minister had said that he desired these powers in order to deal with tuberculous cattle, but he would be aware that great dissatisfaction had been felt in connexion with the administration of the 1922 Act

The Bill was read a second time

NIGHT WORK IN COAL MINES

On Wednesday, March 16th, MR TINKER asked leave to introduce a Bill to prohibit the employment of young persons at night below ground in coal mines Leave was given to bring in the Bill which was read a first time

MENTAL DEFICIENCY BILLS

On Thursday, March 17th MR RHYS DAVIES introduced the Mental Deficiency (No 2) Bill, a measure to extend the law relating to feeble-minded and other mentally defective persons and to reconstitute the Board of Control The Bill was read a first time

On the 18th MR CROMPTON WOOD moved the second reading of the Mental Deficiency Bill He said that the Mental Deficiency Act of 1913, which was one of the most valuable social Acts ever passed, had one defect, namely, that only those who were mentally deficient from birth or from an early age came within its scope Those words "from birth" and "from an early age," as generally defined by magistrates and by medical practitioners, whether rightly or wrongly, excluded from the benefits of the Act several important classes of people who, he was sure, were never intended to be excluded when the Act was passed There were those, for instance, who suffered from encephalitis lethargica, meningitis, and frequent epileptic fits All those diseases might attack a person not at an early age only, but right through life Yet under these diseases people were often rendered mentally deficient Then there was another class which suffered accidents causing damage to the brain There were frequent cases where the early history of a man was lost In such cases it was impossible under the present law to deal with people who required treatment, and who ought not to be allowed to go about committing outrages on the community at large The Bill of last Session was intended to remedy this defect, but it was crowded out at the end of the Session and there was a good deal of criticism raised on the ground that it might interfere with the liberty of the subject The present Bill had been drawn to obviate any such charge The Bill had been drafted with the advice of the experts of the Ministry of Health and the experts of the Board of Control with the invaluable assistance of their president Sir Frederick Willis, and also with the help of the Association of Mental Welfare, whose president, Sir Leslie Scott, had given a great deal of attention to this subject Last Session's Bill limited the period within which menta

Correspondence.

"*Audi alteram partem*"

VENEREAL DISEASE IN THE MERCANTILE MARINE

To the Editor of THE LANCET

SIR,—Having spent over six years at sea, in more than a dozen steamship companies, there has been opportunity to note both the large number of cases seen of venereal disease among seamen and to deplore that something is not done to modify what is an ever-present evil

Examination of Crew—Before signing on this is supposed to be done by the ship surgeon I have never forgotten the words used by the Board of Trade official on more than one occasion to me "You might 'look' these men over, doctor" Of course too often this "looking over" is a purely perfunctory affair, with the result that men are signed on who, though not apparently unfit, soon make their appearance at the dispensary

Inspection in Foreign Ports—This also is a formality Men are drawn up in a line and ship surgeon and port doctor pass rapidly along, in haste to get it over and obtain pratique

The object of this letter is principally to suggest an aid in the matter of dealing with venereal disease while in foreign ports Statistics are given showing the benefit of early prophylactic treatment of cases in the United States Navy during the first 12 hours after possible infection Immediate treatment could hardly be carried out on board merchant vessels, where the surgeon is usually single-handed, but it should be obligatory on all men who have exposed themselves to infection to present themselves at the dispensary the following day for prophylactic treatment In addition a notice should be placed in all fo'c stles drawing attention to the danger run by men when in foreign ports the danger of promiscuous use of towels, pipes, shaving gear, tobacco-pouches, and even tooth-brushes The danger of inefficient treatment should also be drawn attention to, as I know from experience that men will often seek the aid of a chemist rather than report to the surgeon There are then too often disastrous consequences from wrong treatment, or advice from a man who is simply out for profit Capsules are sold at extortionate prices, and injections are dispensed with no knowledge of the strength to be used or suitability of the remedy Again, there is the untreated man, who becomes a source of grave danger on his arrival home

I am, Sir, yours faithfully,
L L BURTON, M D, F R C S

Dargaville, New Zealand

EXCISION OF THE METATARSAL HEAD

To the Editor of THE LANCET

SIR,—Like Mr George Perkins, whose summary of the results of excision of the metatarsal head, hallux rigidus, &c, I have read with interest in your issue of March 12th, I have found that although the patients have expressed satisfaction with the result of this operation, the condition as regards both comfort and function has not been quite satisfactory to the surgeon Ten years ago I removed the metatarsal heads for double painful bunion in a member of my household, and seeing the result daily over a period of years has made it clear that removal of the head of the bone has reduced the stability of the feet to a not inconsiderable extent The patient has to "pick her way" on irregular ground, has to keep the flexors of the four outer toes contracted, and so utilise these toes in place of the absent metatarsal head (or else be reduced to a plantigrade gait), and is no longer fit for long tramps as formerly

For the past eight years I have treated all cases of bunion and hallux flexus by excising at least ¼ in of the proximal end of the proximal phalanx of the great toe, and removing exuberant bone from the upper and outer aspects of the metatarsal head with bone forceps The results of this operation have been definitely better than of the orthodox excision of the metatarsal head, and I can, with confidence, recommend it for all conditions of arthritic deformity of the great toe

I am, Sir, yours faithfully,
Bradford, March 19th, 1927 JAMES PHILLIPS.

CAN TAR CAUSE PULMONARY CANCER?

To the Editor of THE LANCET

SIR,—I have read with interest Dr Robert Hutchison's letter in your issue of March 19th on the likelihood of tar being a cause of pulmonary cancer, and from 40 years study of cancer I think it is a very feasible hypothesis Two cases of pulmonary cancer that I have lately encountered would tend to bear this out—both in females, aged 76, both for years had been emphatic in their enjoyment of the warmth of an anthracite, iron, enamelled stove in their bedroom, and both must, therefore, have inhaled for many hours at a time the tarry vapours and dust incident to this method of bedroom heating The effect of such deleterious inhalations is desiccation of the mucous membranes, and then atrophy of the mucous glands, which are specially abundant on the posterior surface of the trachea and in the larger bronchi This exposes the denuded mucous membrane to irritation from the tarry and dusty fumes

It is difficult to understand how the persistent local application of tar can bring about epithelioma in a tissue, but my opinion is that it does so by dissolving out the thin layer of mucin that encases every cell, separating one cell from another, no matter how closely they are packed, even when so approximated as in the cutaneous tissues, thus allowing the individual cells to rub shoulders, so to speak, and thus an attrition of cells arises and cell division is set up with its dire consequences of infiltration, dissemination and metastasis

I am, Sir, yours faithfully,
WM STUART-LOW, F R C S

Wimpole street, W, March 22nd, 1927

THE PATENTING QUESTION

To the Editor of THE LANCET

SIR,—We desire to make the strongest possible protest against the article on the Patenting Question in your issue of March 12th, in regard to the specific reference to the patent of Herrmann and Fränkel (E P 113,311) As proprietors of the patent in question we are in a position to throw some light on the matter, relying upon your courtesy to publish these comments in your esteemed journal

For ten years we have been manufacturing according to that patent an ovarian preparation, "Sistomensin," and are selling it also in Great Britain through our concessionaires, the Clayton Aniline Co, Ltd, London, in any required quantities, the prices fixed by our concessionaires are considered by everybody to be fair and reasonable The reproach that through not granting a licence for this process we prevent the introduction of potent preparations is unjustified, because of the very fact that Sistomensin itself is recognised to be a potent preparation, as irrefutably shown by a considerable number of spontaneous scientific publications emanating from leading hospitals as well as from private practitioners, without mentioning the innumerable unpublished reports and communications from members of the medical profession We shall be glad at any time to submit this documentary evidence to your perusal

We may add that our product is standardised and approved physiologically by the recognised and approved

Mr **NEVILLE CHAMBERLAIN** Minister of Health, said that the failure of the Bill of last session to reach the Statute Book had created something like consternation in the minds of a very large number of people who had taken a great deal of interest in the efforts made from time to time to improve the conditions of mental defectives and to give the public such protection as was due to them He had received a great number of letters from Mental Deficiency Committees and other organisations interested in mental welfare expressing deep regret that the former Bill had to be dropped, and urging the Government to reintroduce it at the earliest opportunity. Mr **CROMPTON** had undertaken the task of reintroducing the Bill with certain modifications The new definition in the Bill of last year sought to bring in cases affected by such a disease as encephalitis lethargica He was inclined to think that the definition in the present Bill was too narrow, these cases might come on at a later stage than 18, and certainly beyond the age of 20 He preferred the original definition, but he would not press the extreme view if there were opposition, or if there was any danger of losing this Bill whose provisions were valuable as a whole. In this matter they had to consider the rest of the community and that was where he thought that Colonel Wedgwood had taken a one-sided view The Board of Control were always pressing local authorities to provide more accommodation for these unhappy cases and on the whole it was not backwardness of opinion that prevented them from doing so but the financial stringency of the present time He (Mr **CHAMBERLAIN**) had from time to time indicated his own view that if certain other institutions now administered by boards of guardians could be handed over to the councils of counties and county boroughs there might be found some temporary alleviation of the situation He hoped that before long it might be possible to consider something of that kind Meanwhile let them have certified all those who ought to be certified in order that even if there was no room for all of them they might be able to judge which were in the greatest need He hoped the Bill would receive a second reading without a division When it reached the Committee he had no doubt Mr **WOOD** would be ready to consider any suggestion for its improvement by way of amendment

After further discussion

Dr **VERNON DAVIES** said there was a definite distinction between a mentally defective and a case of mental disorder or lunacy Mental defectives suffered from what might be scientifically called amentia, while cases of mental disorder suffered from dementia The unfortunate thing was that in the case of amentia they could not expect a cure But while they could not cure mental defectives they could improve them Under the provisions of this Bill the interests of the mental defective were safeguarded at every point In cases of encephalitis in which they got arrested or incomplete development—the disease perhaps occurring in a brilliant child—something possibly happened to the cells of the brain which prevented their development It was accepted now by most people who were competent to judge that these cases only occurred in adolescence. The Bill was a marked improvement a definite step in advance He had to make again a protest which he had frequently had to make in that House, that medical men were criticised by members of the Labour Party in perhaps not too kindly a manner They had to bear in mind that experts had a certain amount of knowledge and presumably a greater amount than their critics. However wrong experts might be they ought to give them the credit of doing the best to the extent of their knowledge Medical men, by reason of their training possessed knowledge which was superior to that of the layman It was only fair that a certain amount of attention should be paid to them. It was not the wish of medical men to incarcerate anybody who had queer ideas or whims otherwise there might be a lot of people in danger This Bill was not only supported by the Board of Control, the Ministry of Health, and medical men as a whole, it had also the support of every organisation which was concerned with these cases

Lieut-Colonel **FREMANTLE** said he was strongly in sympathy with those who had spoken on the question of the liberty of the individual Colonel *WEDGWOOD* had touched on one of the most difficult points which medical men had to decide, and that was the question of where it became essential to interfere with the liberty of a child or boy for its own sake or for the sake of the community Medical men were the last to say at any moment that they were right in any decision or that they could lay down a hard-and-fast law Medical men were empirics in the last resort they must be But he suggested to Colonel **WEDGWOOD** that he had carried his argument quite far enough There was in the first place, the fact that mental defectives could be shielded and could at the same time enjoy great liberty Those who had expressed the fear that individuals were retained in these homes against their will would be glad to know that experience frequently showed that the reverse was the case It had been suggested that they should have an intermediate institution where a patient could be kept for five days of the week and allowed to go home at week-ends That system already existed in a number of institutions It was clear that there were 35,000 mentally defectives a number which might be enlarged with a higher standard or as some people would say a lower standard of definition There was accommodation for only 5000 in mental institutions On the other hand, a very large number of institutions under boards of guardians were being set free by the legislative measures of recent times, like the Widows' and Orphans' Pensions Act and so on This Bill gave importance to the need of putting under one local authority the Poor-law and other institutions in order that the greatest use might be made of the existing accommodation In the interests of the mental defectives themselves of their families, and of the public, he hoped that this Bill would be passed into law

The Bill was read a second time and committed to a Standing Committee

MIDWIVES AND MATERNITY HOMES (SCOTLAND) BILL.

On March 18th Mr **BARCLAY-HARVEY** moved the second reading of the Midwives and Maternity Homes (Scotland) Bill He said that the object of the measure was to reduce maternity and infant mortality in Scotland Firstly, the Bill provided for the registration of midwives so as to reduce the number of unqualified persons, secondly, the measure provided for the registration and inspection of maternity homes As regarded the question of midwives the position at present was regulated by the Act of 1915 In that year two Acts were passed, one being the Notification of Births Act which enabled authorities in Scotland to make arrangements for expectant and nursing mothers: the other was the Midwives Act which required midwives to be registered and supervised by local authorities under the supervision of the Central Midwives Board These two Acts had reduced the infant death-rate but unfortunately the rate of maternity mortality had not been reduced This was so unsatisfactory that a committee was appointed to inquire into the question, presided over by Lord Salvesen. Some of the figures which they had given in their report were extremely interesting The committee took the decennial period from 1855 From 1855 to 1864 the average death-rate per 1000 births was 4·9 From 1915 to 1922 the rate had increased to 6·2 While the two sets of figures were not quite comparable because the first were based on less accurate information than the last, they showed at any rate that this terrible evil was not decreasing in Scotland but was acutally increasing Lord Salvesen's committee made the definite statement that the evidence they received was unanimous on the essential point of this Bill The committee made a variety of recommendations and two of them definitely called for legislation on lines of this measure In addition the proposed authority was recommended by the Central Midwives Board in 1925 and 1926 The birth rate in Scotland was rather over 100 000 per annum and therefore the maternity death rate was 600 women a year The desire was to eliminate, if possible the unqualified midwife Difficulty had been experienced in administering the Act of 1915 because of the expression "habitually and for gain" and the first intention of this Bill was to get over that difficulty and try to tighten up the position Words had been put in which would leave sufficient elasticity to prevent hardship in cases where it was not possible to get a qualified midwife. Clause 3 was important because it entitled a midwife who had been suspended on account of the possibility of her carrying infection through no fault of her own, to be paid during the time she was actually standing off *Part II*, in brief, simply insisted that maternity homes should be registered and laid down a penalty for anyone who failed to register and yet carried on such a home

Sir **GEORGE BERRY** seconded the motion for the second reading of the Bill He said that Part I was a matter of public health and Part II. was really a matter more of public propriety He could assure the House having made careful inquiry, that the medical profession in Scotland approved entirely of the Bill. Part I. had been carefully considered by the Central Midwives Board and it also came before the Consultative Committee of the Board of Health In the final draft of the measure all objections had been met The question of maternity homes was a matter of social reform and he thought it must commend itself to every member of the House. The general opinion of Scottish medical graduates was that the reform proposed was wholly desirable and necessary

Major **ELLIOT** Under Secretary of State for Scotland said that the Bill was backed by members of all parties and he suggested that it should be given a second reading Any points of detail could be discussed in Committee

The Bill was read a second time and committed to a Standing Committee deficiency must have made its appearance to the ages at which mental development was going on. But it had been felt that this was rather dangerous Doctors said that mental development could only go on to, at the most, 25 years of age, but the opinion of doctors might vary, and he thought that it was quite rightly contended that this might interfere with the liberty of the subject In the present Bill, therefore, an age limit was fixed of 18 years The House might ask why 18 years had been selected? The question had been debated among scientists and in the end, though many people wished the age to be higher, it was decided that to avoid opposition to the Bill they had better put the age as low as possible At present the two alternative methods of dealing with mentally deficient children who left the special schools was either to shut them up in institutions or let them go into the world, and it had been thought desirable to provide in this Bill for another method—namely, that they should be placed under supervision He looked upon this effort to provide supervision for mental deficients under guardianship as one of the hopeful ways of dealing with this problem Clause 5 of the Bill dealt with defectives who were out under licence in connexion with the continuation of orders The object was to prevent the defective having to leave his work and return to his centre in order to be re-certified This provision would empower a doctor at the place where the boy was working to give the certificate necessary for the continuation order No boy would be certified by one medical practitioner alone After the medical practitioner sent in his report the case had to be investigated by visitors, who consisted of three Justices of the Peace, with one or more women added, and also a medical practitioner, and their report went up to the Board of Control Even then the Board could only re-certify the case when it was satisfied that the continuation order was in the interests of the patient himself Clause 6 made it the duty of local authorities to provide suitable training or occupations for defectives who were at their own homes under supervision This was important because idleness might lead the children into trouble Clause 7 enabled local authorities to take cases under contract from other local authorities whose own institutions might be too small Small institutions did not admit of proper classification and treatment and their multiplication was undesirable In conclusion the hon Member described visits he had made to the Manor Institution and the West Park Mental Hospital at Epsom. The first which was for mental deficients had, he said, a large mass of young people all as busy as bees Workshops were all over the place and the patients were working at different trades It looked like an ordinary public school with playgrounds, cricket grounds, and football grounds The West Park Mental Hospital, on the other hand, was controlled under the Lunacy Act It was the most improved institution of its kind, but among the patients were a lot of cases of encephalitis lethargica which could not be dealt with under the Mental Deficiency Act, 1913 These young sufferers were among elderly people and they had no great provision made for their training The House would agree that it was not good for young people to be put among middle aged people in a mental hospital who would probably teach them all sorts of moral perversions It was the power to put such children into mental deficiency homes that was sought under this Bill

Sir Douglas Newton in seconding the motion for the second reading of the Bill, said the Medical Committee of the Central Association for Mental Welfare, an organisation which represented all the chief workers associated with this branch of medical science, was anxious that the definition of a defective should be extended in the way suggested in this Bill in the light of the experience gained by the working of the 1913 Act Experience had shown that defectives had frequently been unable to receive the treatment which they ought to receive The Bill was not intended to deal with later ages, or with lunatics, as such, or with cases of mental disorder which supervened after maturity had been reached No doubt there would be some defectives even under this extended provision which would not be covered, but they thought that there would not be a sufficient number to justify a further extension than that provided in the Bill If there were any further cases it would be wiser, at any rate in the first place, to proceed somewhat slowly and leave such cases to be dealt with under the Lunacy Act The position of members of the medical profession was by no means satisfactory That was one of the principal reasons why the Bill had been brought forward In many cases medical men had found themselves unable to take the responsibility of certifying cases which were not congenital The medical profession in the administration of the Act of 1913 had shown, it would be agreed, a great deal of courage in dealing with what was admittedly a difficult situation, for they were inadequately protected under the existing law By raising the age to 18 much would be done to safeguard their position and to bring about a better state of affairs In the annual report of the Board of Control reference was made to the position of local authorities under the Act of 1913 Under that Act 124 local authorities—county councils and county borough councils—were charged with the duty of administration which entailed reporting upon the incidence of mental deficiency in their areas, and in notifying cases in need of guardianship and control. If the defective was merely in need of supervision—and there were many such cases—the local authority had now no power of notifying the case The Bill made an important and valuable extension of their power in this respect In 1924 it was ascertained that there were 48,778 mental deficients in the country, or 1 29 per 1000 of the population In 1925 there were 55,480, or 1 46 per 1000 of the population Ascertainment unfortunately tended to increase the figures, but there were great variations in different areas Oxford headed the list with 4 49 per 1000, but in Swansea the ascertainment only admitted to 0 12 mental defectives in that area It seemed not unreasonable to suggest that Swansea should take note of her responsibility under the 1913 Act The necessary funds were at present raised on a basis of 50–50—that was 50 per cent from the taxpayer and 50 per cent from the ratepayer This allocation would in future have to be reconsidered and more help would have to be given by the State to local authorities It had been suggested that with a view to preventing the growth of future generations of mental defectives preventive measures might be taken and that sterilisation would prove a cheap alternative to segregation He did not think that argument was a sound one Mental defectives nearly always required care and protection and sterilisation would not get over that difficulty Also they nearly always led useless and probably harmful lives and what was more they would be in a position to spread disease Little expense would be saved to the community Sterilisation could not be resorted to without compulsion and that would be quite rightly objected to He had been given figures showing that sterilisation would only result in from 3 to 5 per cent of the people now in institutions being allowed a greater measure of freedom, therefore he contended that it was not a practical solution, or one which the House, at any rate at the present time, need seriously consider It had been estimated that there were 160,000 mental defectives and it had been advanced that if they ascertained that there were more, the existing accommodation would prove inadequate He did not see why any class should be ineligible for treatment, and he urged the need for local education authorities taking action so that all cases which ought to be notified were notified before they reached the procreative age

Colonel Wedgwood, in moving the rejection of the Bill, said if they could divorce mental defective legislation from this detestable coercion, from forcing parent and child to be separated against their wish, nearly all his objections would go, but they would insist not on taking defectives whose parents wanted them to go to homes, but those whose parents did not want them to go To give experts the right to break up a family against the wishes of the parents was utterly unnecessary To do that under the guise of charity and benevolence seemed to him utterly damnable It was true that Sir D Newton did not approve of sterilisation, but his argument appeared to be that if they could not compulsorily sterilise these people they could at any rate, lock them up There were other ways of preventing undesirables from breeding besides surgical operations They could lock people up, and that was just as bad, but rather more hypocritical The argument for sterilisation was based on the idea that persons who were called morally defective were sure to have mentally or morally defective children Statistics proved nothing of the sort The border-line of eccentricity might go either towards genius or towards insanity If they took into their hands presumptuously the business of nature and of Providence they would take a responsibility which was impertinent even in the twentieth century, and one which was likely to lead the world in directions other than those intended by eugenist societies The definitions in this Bill, as in the old Act, were to be read by experts who, after all, were very often only expert in the imagination of others His reading of history filled him with horror at the thought of priestly authority Let them take care lest they built up in this generation by this worship and prostration before experts a new terror as horrible as the priestly system of old

Mr Rhys Davies (who was Under Secretary for Home Affairs in the Labour Government) supported the Bill He said that all who were interested closely in mental deficiency and listened to evidence and inquired into facts were compelled, whatever their views might have been beforehand, to come to the conclusion that something on these lines ought to be enacted by Parliament He did not agree with every word in the measure which he hoped would be amended in Committee s own use from opium lawfully in his possession smoking in company is illegal in the United es, Punjab, and North-West Frontier Province, nsumption of opium in any form is subject in Burma Assam to registration and individual rationing

Poor-law Medical Relief

Frederick Roberts asked the Minister of Health er he was aware that the majority Report of the l Commission referred to the unsatisfactory condition medical relief of some of the districts where the only n of obtaining an order for the doctor was from the ing officer, and that officials of his department stated r evidence before the commission that if the overseers abolished it would be necessary in the country districts their relief powers to some local officer or to the guardian; and whether in the light of these facts ould have the draft Order in Council reconsidered —ingsley Wood replied Such evidence as was given ers of the Department was to the effect that no ical hardship would result from the abolition of the ers; one Inspector suggested that the power of the ers might be given to the local Guardians The Order ncil has been made after lying on the Table for the ed period, and my right hon friend does not think it essary to reconsider the matter.

Pensions Hospital Patients and Vaccination

Robert Morrison asked the Minister of Pensions er he was aware that instructions were issued on the tant to the patients of the Ministry of Pensions tal Chepstow, that all patients must either be ted or take their discharge and by whose authority for what reason these instructions were issued —olonel Stanley (Parliamentary Secretary to the try of Pensions) replied: The instructions given were the terms suggested by the hon Member In quence of the recent severe outbreak of small-pox mouthshire, it was deemed necessary by my medical es to take all possible steps both to protect the patients e hospital at Chepstow and to obviate the risk of the e of this important institution which serves the needs ioners in Monmouthshire and South Wales as closure d have been the only possible course in the event of an eak of this disease occurring in the hospital With w instructions were issued to the Medical Superin directing his attention to the importance of the er and advising him that, in the case of any patient he considered not already adequately protected the disease revaccination should be secured as possible, if he considered it necessary and medically ticable. In the event of refusal on the part of a patient where the case was not, on medical grounds suitable vaccination, the case was to be dealt with either by the rary provision of alternative treatment or by isolation other means compatible with the welfare of the patient, h would obviate contact with other patients in the tion These instructions have been carried out with ul regard to the well-being of all the patients concerned whose care my right hon friend is responsible, and, I glad to say, have so far been effective

Infant Mortality in Tropical Colonies

Mr Herbert Williams asked the Secretary of State for Colonies whether systematic work was being undertaken the tropical colonies for the purpose of reducing the heavy e mortality —Mr Amery replied: Yes Sir, measures being taken in most tropical colonies on the lines that have successful in reducing infant mortality in this country, in many of them the results compare not unfavourably what has been accomplished here The governments cal colonies are fully alive to the importance of this Infant welfare clinics have been established women doctors, nurses, and health visitors who have special experience in this branch of medical work, are g appointed in increasing numbers

Gland Grafting in Animals

Sir Harry Brittain asked the Minister of Agriculture when he had had brought to his notice any of the experiments of Dr Voronoff in grafting an extra gland on to ock for the purpose of producing a finer and more ous type, and, if so, whether these experiments can looked upon as successful and would receive attention his department.—Mr Guinness replied I am aware Dr Voronoff's work on gland grafting, and I have nged with Dr Voronoff's concurrence for a small mission of scientific men to examine and report upon the imental work on sheep which has been carried out at Government breeding station in Algeria Owing to bad season, the visit of the commission has been poned until October or November, when the grafted ep will be available for examination.

Registration of Opticians

Mr Herbert Williams asked the Minister of Health the composition of the departmental committee on the registration of opticians —Sir Kingsley Wood replied The personnel of the committee is not yet complete but my right hon friend hopes to be in a position to announce its composition at an early date

TUESDAY, MARCH 22ND

Casual Vagrants and the Spread of Scabies

Mr Crawfurd asked the Minister of Health whether he was aware that at a recent meeting of the National Association of Vagrancy Committees, complaint was made that casual vagrants suffering from scabies were passed on from casual ward to casual ward, thereby spreading the disease; and whether he proposed to take any steps in the matter —Sir Kingsley Wood replied This complaint has not previously been brought to my right hon. friend's notice but he will make inquiries I may say that the attention of guardians has from time to time been drawn to this matter by circular and otherwise The regulations applicable to casual wards contain provisions enabling guardians to detect and deal with such cases and the guardians also have powers of detention

Poor-law Medical Relief

Sir Charles Oman asked the Minister of Health whether he was aware of the recommendation of the Royal Commission on Poor-laws to the effect that medical relief should be made more readily accessible and of the evidence of a witness speaking on behalf of the British Medical Association (Report, pp 282-4) to the effect that if doctors attended without an order the rule was that they did not get paid: and whether he could take steps to ensure that, in the case of medical assistance being rendered to any poor person on account of accident or sudden illness, payment should be made to the medical man although no order for relief might have been given by the guardians or the relieving officer —Mr. Chamberlain replied. The reply to the first part of the question is in the affirmative but I am not aware that at the present time any difficulty of the kind suggested in the second part has arisen I should be glad to consider any information my hon friend may have on the subject

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Donations and Bequests—Dr Samuel Clarke Noble M R C S Kendal Westmorland said to be the oldest medical practitioner in the North of England, who died at the age of 89 years bequeathed £3000 to the master and scholars of Balliol College Oxford, for the foundation of an open classical scholarship to be known as the "Eric Raymond Noble Scholarship" £300 to the Medical Mission of the Church Missionary Society, £1150 to Dr. Barnardo's Homes for the erection of a cottage at the Girls Village Homes, £1500 to the Westmorland County Hospital for the endowment of three beds in the children's ward in memory of Hugh Percy Noble, Kathleen Maude Noble, and Eric Raymond Noble. The ultimate residue of the property—originally £38 807—as to one-third to Middlesex Hospital for a scholarship in remembrance of his son formerly anæsthetist at the hospital, to be known as the Eric Raymond Noble Scholarship; one-third to Balliol College for a classical scholarship, and one-third to Dr Barnardo's Homes for general purposes.—Miss Margaret Jane Brown, Glororum near Morpeth, Northumberland, besides other bequests left £500 each to the Victoria Blind Asylum Newcastle, and the Newcastle Infirmary —Mr John Cowan, who for over 50 years was the agent of the Free Church of Scotland and the United Free Church, left £201,766 Besides bequests to these institutions he left £1000 each to Longmore Hospital for Incurables, Edinburgh, and the Sick Children's Hospital Edinburgh; £500 to the Blind Asylum Edinburgh, and, after a life rent, £40 000 to the Edinburgh Royal Infirmary to endow a ward in memory of his father, Lord Cowan The residue is to be divided between the United Free Church for the Aged and Infirm Ministers Fund, and the Royal Infirmary, to equip, if thought practical, a ward or hospital for paying patients —Among other donations the late Mr. Howard Ellis, of Swallowhurst, Blackburn Park, Didsbury Manchester, left £1000 each to the Royal Free *Hospital, London*, and the Middlesex Hospital, £500 each to the London Hospital, the University College Hospital, London, the Manchester Royal Infirmary, the Ancoats Hospital, Manchester, and St. Mary's *Hospital* for Women Manchester.—*Miss Catherine Mary* Stewart, Winchcombe, Gloucester, formerly of Manchester, besides other *bequests, left £1000 to the* Winchcombe Hospital for the endowment of two beds.—*The Chelsea* Hospital for Women has received a bequest *of £1000* from the late Sir Squire Bancroft *to endow a bed in memory of the late Lady Bancroft.*

HOUSE OF COMMONS

Wednesday, March 16th

Dangerous Drugs

Mr Neil Maclean asked the Secretary of State for Foreign Affairs whether he was aware that the printing of document O C 294 (b) of the League of Nations, dealing with the traffic in dangerous drugs, had been stopped and all existing stocks returned to Geneva, and who issued the orders and what were the reasons—Sir A Chamberlain replied I have no official information on this subject, but I understand that the publication of this document is merely temporarily postponed pending revision

Poor-law Expenditure in West Ham

Replying to Mr William Thorne, Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health) stated that the Budget statement of the guardians of the West Ham Union for the half year ending Sept 30th, 1927 showed a total of common charges amounting to £759,892 This sum included £76,000 for lunatics, £1000 for vaccination fees, £7000 for maintenance in hospitals, &c, £6000 for drugs and medical appliances, and £370 for subscriptions to hospitals The income statement showed £709,078 accounted for by precepts, and £50,000 moiety of grants to be received from county councils of West Ham, East Ham, East Ham and Essex under the Local Government Act, 1888, and other receipts

Approved Societies and Dental Benefit

Mr Rhys Davies asked the Minister of Health what tribunal would determine any differences which might arise between a dentist and a regional dental officer, and under what authority would any decision be given by such tribunal—Mr Chamberlain replied The function of a Regional Dental Officer is to furnish an independent professional opinion for the guidance of approved societies and dentists in connexion with claims for dental benfit. If a dentist is dissatisfied with any action which a society, after consideration of the report of the Regional Dental Officer, may take, or propose to take, he may refer the case to the Dental Benefit Joint Committee whose jurisdiction both societies and dentists have, under the new arrangements, agreed to accept

Thursday, March 17th

Maximum Disablement Pensions

Mr Beckett asked the Minister of Pensions the number of men drawing 100 per cent disablement pensions in January, 1925, and January, 1927, or the nearest available dates—Major Tryon replied The number of men drawing pension at the maximum rate of 100 per cent. was in January, 1925, approximately 32,000 The number of the same class in January, 1927, was approximately 34,000.

Open-air and Hospital Schools

Mr Short asked the President of the Board of Education what was the number of open-air schools under the county and local educational authorities of Staffordshire , and the number of children in attendance—The Duchess of Atholl (Parliamentary Secretary to the Board of Education) replied There are at present two open-air schools in Staffordshire, and two hospital schools conducted on open-air lines The total number of children on the registers of the four schools, on March, 31st, 1926, was 158 The hon Member will, however, understand that the total number of children dealt with in institutions of this type during the year is very considerably larger than the number in attendance on any given date

Repair of Insanitary Houses

Mr Robinson asked the Minister of Health if his department took any action in compelling, or had authority to compel, local authorities to reinstate insanitary houses at the expense of the owners of such property which was a menace to the general health of the public and the tenants in particular—Mr Chamberlain replied Part I of the Housing Act, 1925, contains the provisions enabling local authorities to secure the repair, maintenance, and sanitary condition of houses at the expense of owners, and provision is also made for their enforcement by order of the Minister of Health if, after receiving a complaint and holding a local inquiry, he is satisfied that there has been default on the part of a local authority

Children and Vaccination

Dr Watts asked the Minister of Health the number of children who attained the age of 12 months during the year 1926, the number of those in respect of whom the parents furnished a certificate of successful vaccination or a certificate of conscientious objection, the number of those whose parents did neither, and the number of prosecutions—Mr Chamberlain replied Accurate information is not available as to the number of children who attained age of 12 months during 1926 The total number of b registered in England and Wales during 1925 was 710, but the vaccination returns in regard to the children b in that year are not yet quite complete The returns present to hand relate to a total of 708,500 children a of these 37,728 died unvaccinated Certificates of succe vaccination were furnished in respect of 313,450 child and declarations of conscientious objection to vaccinati in respect of 291,347 children As regards the remaini 60,975 children no such certificates or declarations w furnished I have no information as to the number prosecutions

Unhealthy Schools

Mr Short asked the President of the Board of Educati the number of existing elementary schools condemned unsuitable and incapable of improvement, and the numb of children attending such schools

Mr Barker asked the President of the Board of Edu tion whether he was aware that there were schools hou more than 500,000 children which were totally unfit for t purpose and should be closed forthwith, and what st were taken to see that these schools were replaced by bu ings of a more healthy type—The Duchess of At replied The number of schools on list A—that is scho which have been reported as unsuitable and incapable improvement—is now 623 The number of children the registers of these schools is about 160,000 and not, suggested by Mr Barker, more than 500,000 The lat figure is an estimate of the total number of children attendi the schools originally included in the lists A and B In number of cases the requisite action has already been tak and proposals have been received for dealing with a la number of other schools on the lists The programm which have been submitted indicate that authorities co template being able to deal with the bulk of the provid schools on the lists by the end of the programme peri and my right hon friend is now considering what furth steps should be taken to secure that the whole proble both as regards provided and non-provided schools, treated on a systematic basis

Wines from Bond for Medicinal Purposes

Major Braithwaite asked the Chancellor of Exchequer whether he would consider, in view of the seri epidemic of influenza, releasing from bond the requiremen of responsible druggists of sherry used for medicinal p poses—Mr Churchill replied I am informed that spec consideration is given by the Commissioners of Customs a Excise to applications for the delivery of wine to be u in the manufacture of medicated wines

Friday, March 18th

Rejection of Naval Recruits

Mr Hore-Belisha asked the First Lord of the Admira how many men presented themselves on an average e month for recruitment in His Majesty's Navy, and h many were rejected, and for what principal reasons Lieut -Colonel Headlam replied During 1926 the aver number of candidates who presented themselves e month for entry was 5100, and the average monthly num rejected was 4460 The main causes of rejection w defective vision, teeth and hearing, and being un educational standard

Rejection of Recruits for the Royal Air Force

Mr Hore-Belisha asked the Secretary of State for A how many men present themselves on an average ea month for recruitment in His Majesty's Air Force, a how many were rejected, and for what principal reasons Sir S Hoare replied The total number of men who p sented themselves for recruitment in the calendar y 1926 was 1028 Of these, 258 were rejected on medi grounds and 391 on other grounds such as educatio unfitness or age The principal causes of rejectment medical grounds were dental defects, deformity of fe heart disease, poor physique, respiratory diseases, defecti vision and ear diseases

Monday, March 21st

Opium Shops in India

Mr Gardner asked the Under Secretary of State for Ind the number of licensed opium shops in India the area opium cultivated and the parts of India in which opiu smoking was prohibited—Earl Winterton replied T number of shops in British India in 1925–26 was 58 with the addition of a small number in Delhi, Ajmer-Merwar Coorg and Baluchistan which in 1924–25 was 88 Th latest figure of poppy cultivation in British India sho 114,198 acres in the year ending Oct, 1925 in additio there was a small area of 1653 acres in the Punjab Hill The law in British India prohibits the sale of opium prepar for smoking, and also its manufacture except by an individu

Obituary.

JOHN BROWNLEE, M.D., D.Sc. Glasg., D.P.H.,

DIRECTOR OF STATISTICS, MEDICAL RESEARCH COUNCIL

The death from broncho-pneumonia, after little more than 48 hours' illness, of Dr John Brownlee, which occurred on March 20th, will come as a great shock to his numerous friends. He had not enjoyed robust health for some years, but he was actively engaged in research work only a few days ago and apparently in his usual health and spirits.

John Brownlee was born in 1868, a son of the Manse, and educated in the University of Glasgow where he had a brilliant career, securing first class honours in mathematics and natural philosophy in his Arts course and commendation both for M.B. and M.D. degrees. He graduated M.A. in 1889, M.B. in 1897, M.D. in 1898, and D.Sc. in 1907. He was also a D.P.H. of Cambridge, and some years ago the Faculty of Physicians and Surgeons of Glasgow conferred upon him the distinction of election to the Fellowship without examination. After graduation and the usual resident posts, Brownlee spent two years as resident physician in the Belvidere and Kennedy-street Fever Hospitals and then nine months as pupil assistant to the late Dr J. B. Russell in the Glasgow Health Office. This experience impressed him deeply, and Russell was for him one of those great men who, in Helmholtz's words, alter one's whole scale of values. In 1899 Brownlee was appointed medical officer of health of Guernsey, and although he held the post only 18 months this stay in an environment very different from that of a great industrial city also affected him deeply. In 1900 he returned to Glasgow as physician-superintendent of the Belvidere Fever Hospital and for the next 14 years (he transferred from the Belvidere to the Ruchill Hospital in 1908) he was mainly engaged in the clinical and administrative work of a large hospital for infectious diseases. In this work he was conspicuously successful. Although not a fluent lecturer he was an inspiring clinical teacher, and his old pupils remember gratefully their lessons learned at Ruchill. Brownlee found time, however, to apply his mathematical ability to medical and biological problems, and before his appointment by the Medical Research Council, in 1914, to be the first director of their statistical department, he had already published several important papers of a biometric character and won a reputation as a prominent exponent of the statistical method. From 1914 onwards Brownlee's professional interests were statistical and a bibliography of his work since 1913 includes no less than 45 titles. Many of these papers, such as his memoir on the epidemiology of phthisis and his investigation of the periodicity of epidemics of measles, involved an immense amount of detailed analysis and are of permanent scientific value. To the public he was best known for his enunciation of 33 weeks as the interval between epidemics of influenza and for his forecast based upon this assumption.

John Brownlee

"It is not possible," writes one of his colleagues, "within a few hours of the loss of a great investigator adequately to characterise the nature and value of his contribution to knowledge. Perhaps it may be said that the real value of Brownlee's life work was not so much in any important specific addition to knowledge as in the general character, the *quality* of his work. This may, at first, seem a hard saying, for in the mere A B C of literary composition Brownlee was deficient. His literary style was not very attractive and he had none of the power, so conspicuous in, for instance, the writings of Mr Udny Yule, of expressing a difficult mathematical argument in such a way that no attentive reader can fail to grasp it.

"But any reader who cares to surmount the superficial difficulties of Brownlee's style is inevitably conscious of a certain philosophical breadth of treatment which he will seek in vain in the writings of most statistical epidemiologists. The memoir on the epidemiology of phthisis or the report on the mortalities of birth, infancy and childhood, well illustrate this quality. A reader may dissent from every particular proposition and yet feel that the author has placed him under a great obligation, has obliged him to look at the problems from a loftier standpoint. There is a great gulf between acuteness and sagacity. Of that acuteness which enables a man to solve neatly particular problems—the mental analogue of the precision with which a terrier nips rats—Brownlee had little; he was not acute in the narrow sense but he was something more, he was sagacious. Of course, he had the defects of his qualities. People who did not know him intimately and sought guidance on some specific problem might be, and frequently were, exasperated by the way he would pass from topic to topic and leave the difficulty just where it was at first. But nobody who knew him intimately could fail to be struck by the immense range of his erudition or to be charmed by the simplicity of his character."

Brownlee was singularly free from personal jealousy or vulgar ambition and if he was not, in the formal sense, a great teacher of statistical epidemiology, his writings and example have done, and will continue to do, great good. Many years ago, Dr Campbell Munro wrote: "Dr Brownlee is a man of high intellectual endowments, of great breadth of view, of brilliant scientific attainments—a man who is certain to attain a high position in the public health speciality. He is a man of high moral purpose and elevation of character, and, with all his attainments, of singular modesty and simplicity." That might fairly stand for Brownlee's epitaph.

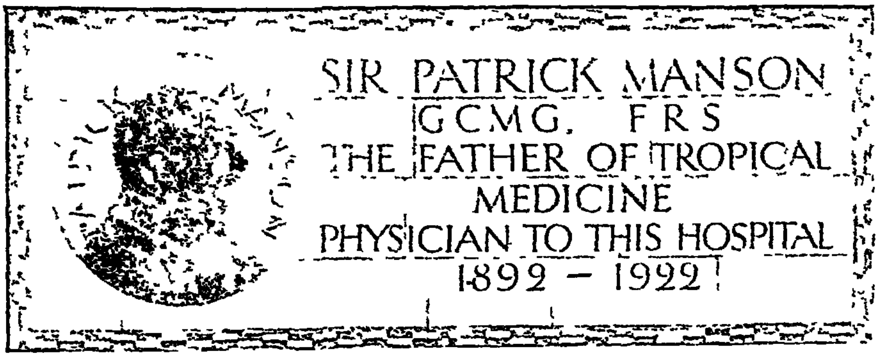
CORRADO DONATO DA FANO, M.D. Pav., F.L.S., F.R.M.S.

Dr C. D. Da Fano died suddenly at his home in Campden Hill at the age of 47 on March 11th, hardly more than a year after the death of his old teacher Camillo Golgi. Dr Da Fano was an Italian by birth and education who had lived and worked in this country only since the war, having been appointed as lecturer in histology at King's College, Dr A C **ROXBURGH** said that the comparison between sunlight and artificial light was vitiated because the latter had to be given in a relatively stuffy atmosphere He adduced, in support of the action of light being non-specific, figures showing how similar its results had been in tuberculous, non-tuberculous febrile, and non-febrile batches of patients Referring to its dangers, he related how one patient with lupus and another with sarcoids had developed phthisis after carbon arc treatment He had abandoned it for the treatment of dermatitis seborrhœica and had found that psoriasis cleared up better with chrysarobin ointment

Mr H J **CARDEW** corroborated Dr Sequeira's account of the good results obtained from the carbon arc given as a general bath in the treatment of keratitis, conjunctivitis, and other eye complaints

UNVEILING OF MEMORIAL PLAQUE TO THE LATE SIR PATRICK MANSON BY THE MINISTER OF HEALTH.

AN appropriate and sympathetic ceremony took place on March 15th at the Albert Dock Hospital, London The Minister of Health unveiled a memorial plaque to the late Sir Patrick Manson, the Father of Tropical Medicine, in the very ward in which, with the efficient aid of the Seamen's Hospital Society, Manson had established the clinical teaching of tropical medicine some 28 years ago Sir Arthur Clarke, the chairman of the Seamen's Hospital Society, in introducing Mr Neville Chamberlain, referred to the close association between Manson the Chamberlain family, and this Society, and expressed the hope that this "family association" might continue Mr Chamberlain emphasised the bearing of the main discoveries of tropical medicine on the trend of medical science as a whole, and in doing so he showed himself to be familiar not only with the technical achievements, but with the personal attributes of Patrick Manson He compared the historic association of Manson and Ross with that of Darwin and Wallace Throughout his speech Mr Chamberlain gave indications that the Minister of Health is fully alive to the paramount importance of tropical medicine in the Empire's affairs Dr George C Low, the senior physician, in proposing a vote of thanks, laid special emphasis on the persistence of Manson, ably backed by Joseph Chamberlain, in face of official and professional opposition to his schemes Prof R T Leiper, F R S, in seconding this vote, paid a warm tribute to the personality of Sir Patrick Manson as portrayed in the recently published account of his life and to his genius in stimulating and encouraging research



MEDICINE AND THE LAW

THE HUME-SPRY CASE

AFTER 15 days hearing the action brought by Mr Frederick Hume-Spry against Dr Robert Percy Smith, of Queen Anne-street, and Dr A H Watson, of Salisbury, claiming damages for alleged negligence in certifying him insane, came to its only possible conclusion The jury stopped the case, intimating that their unanimous verdict must be for the defendant doctors, Mr Hume-Spry's counsel admitted that it was impossible for him to succeed; and Mr Justice McCardie, who had tried the case with notable patience and judgment, explained that the verdict of the jury completely vindicated all those upon whose characters Mr Hume-Spry had cast aspersions The documents in the case are being retained in the custody of the Court so that the Director of Public Prosecutions may consider whether or not he will institute criminal proceedings against Mr Hume-Spry for perjury or otherwise, it is perhaps unlikely, however, that a jury will be asked to fix a man of Mr Hume-Spry's mental instability with criminal responsibility

The issues involved in the recent action were unusually grave in their bearing upon members of the medical profession The plaintiff complained that, in certifying him, the doctors had relied upon his having a fixed delusion that his wife had committed misconduct with Dr Woods, medical superintendent of the Palmers Green Hospital, in which the plaintiff had been a Ministry of Pensions patient, and upon statements that he had tried to murder his wife and to commit suicide He said he had reasonable grounds for believing that his wife had been unfaithful, he denied the attempted murder and suicide, and he said these facts would have appeared if the doctors had made proper inquiries His counsel, speaking doubtless according to instructions, at first gave the impression that he definitely asserted Mrs Hume-Spry's infidelity, the learned judge, indeed, seemed to expect that counsel would specifically cross-examine the witnesses against whom the plaintiff had made these allegations, as to actual times and places where the suggested misconduct had occurred Later in the case it appeared that the plaintiff's counsel abandoned the assertion of misconduct and retired upon the safer position (untenable as the jury's verdict has established) that the conduct of the persons concerned was such that a sane man might reasonably have inferred misconduct It was the plaintiff's view that the officials and doctors of the Ministry of Pensions had conspired wrongfully to send him to the asylum For this suggestion, Mr Justice McCardie declared emphatically, there was not the slightest foundation

The proceedings will inevitably prompt the question how much longer a medical practitioner is to be exposed to attack for discharging duties which the Lunacy Law lays upon him, but which he cannot legally be compelled to perform The Act of 1890 protects those who sign medical certificates of insanity if they have acted in good faith and with reasonable care The Royal Commission set up after the Harnett case, recommended that the *onus* of proving good faith and reasonable care should be shifted, and that instead of the doctor having to discharge it, the complaining patient should be obliged to prove said or done to correct some of the exaggerated statements made

Ultra-violet Light for Children

Dr H M **Oddy** pointed out the difference between the action of ultra-violet light on the skin of adults and infants respectively Although an infant's skin was thinner, an erythema was much harder to produce in it than in that of an adult The danger of overdose was therefore increased, for children could not describe their symptoms The signs were increased irritability and restlessness, disturbed sleep, a persistent loss of weight, digestive troubles, and a loss of appetite Except in tuberculosis, better results were obtained with the mercury-vapour lamp than with the carbon arc His impression was that the tungsten lamp was not of much use to children except in general baths Treatment should not be continued too long; 12 to 20 applications should be followed by a month's rest The action of light on the cholesterol, calcium and phosphorus in the blood was known, and there might be yet other substances on which light acted to produce its therapeutic results Gastric juice, for instance, had its acidity lessened by light baths Turning to the clinical uses of light, he remarked that it should be employed in rickets as an adjunct to cod-liver oil In tuberculous peritonitis and glandular tuberculosis light was counter-indicated by active disease of the lungs, otherwise it might be used in graduated doses It gave better results in tuberculosis of the bones and joints Light should never replace other treatment in surgical tuberculosis, but should be used in conjunction with it In pregnancy and lactation, especially when the milk flow fell off, light was very useful It acted like a charm in restless cases of malnutrition and marasmus, but might do harm to a very severe case Older children of the "hypotonic" type benefited much, failures, especially with out-patients, were generally due to overdose or bad regulation Light therapy was indicated in post-febrile and post-operative debility and depression, muscular paralysis, asthma, late whooping-cough, and anæmia where hæmoglobin was low, but was counter-indicated in leukæmia

The Physiological Basis of Light Treatment

Dr A **Eidinow** dealt with the scientific and biological aspects of light treatment, and related experiments undertaken to show its action on the bactericidal power of the blood Irradiated skin did not differ from ordinary skin in its bactericidal value, and the penetrative power of the rays was very small, therefore the result could not depend on direct action on the skin or on the blood or blood-cells The ultra-violet rays were bactericidal, but bacteria in blood or serum when exposed to the rays, cool, were entirely unaffected The solution of the problem seemed to lie in the proved fact that an erythema dose of light will produce a fixed leucocytosis beneath the skin, and to the activation and absorption of the ergostearol present in skin and sweat glands It had been shown that this ergostearol was allied with the cholesterol, and that when irradiated it was the potent factor in preventing rickets The skin rapidly became immune to ultra-violet rays, and remained so for 14 days until the desquamation was over and new skin had developed There was a definite optimum area for exposure if the maximum bactericidal effect were to be obtained, this was one-sixth of the total surface area There was no need for large, massive exposures This point needed clinical investigation and might revolutionise the technique of exposures Many bad results might be due to the fact that the patient's skin was immune to light, and so he was not getting irradiation at all The dosage depended much more on the surface area of skin exposed than on the quantity of light The most important counter-indication was the extent to which the disease had progressed Very serious results might follow large exposure in cases where the blood was impoverished, as in septicæmia

Light in Surgical Tuberculosis

Sir **Henry Gauvain** pointed out that, although the title of the discussion was "ultra-violet" rays, very little work had been done on the use of pure ultra-violet rays, and in actual treatment no one had cut off the infra-red and visible rays, except for diagnostic purposes, as in ringworm. He was sure that for surgical tuberculosis real sunlight was the best and in sunlight the ultra-violet rays only constituted 1 per cent The value of the artificial methods—carbon arc and mercury-vapour lamp—diminished as their ultra-violet ray power increased Clinical experience did not support the view that the good effects of the treatment are due to the ultra-violet waves Other radiations must have either some good effect or else the power of intensifying, diluting, or modifying the ultra-violet The visible rays certainly had much greater penetrative power In surgical tuberculosis light was not specific and must be regarded merely as an aid—though a very valuable aid—to other forms of treatment It had been shown that the increase in basal metabolism during exposure to sunlight was not due to the rays but to the cold air The value of light largely depended on the patient's general reaction, which was made up of many constituents One was pigmentation, and there was no doubt that the majority of pigmenters did very much better than the majority of non-pigmenters Healing lesions healed more quickly under light treatment though progressive lesions did not benefit The healing of sinuses was hastened, often with very little scarring and sequestra might be painlessly extruded He did not entirely agree with Dr Eidinow that there could be no direct action of light on the bacteria in lupus The nodules might be more easily permeable by light than ordinary skin A brisk local dose from the mercury-vapour lamp would produce little blebs wherever there were nodules, when the rest of the skin was not blistered. These blebs might assist in healing

General Discussion

Dr J H **Sequeira** agreed that the visible rays were of value The general treatment of the body by light had healed lupus without any local measures whatever but in no case was it wise to rely entirely upon general irradiation of the body It had been shown that no change was produced in basal metabolism solely by general light baths, nor did these baths prevent the acute specific fevers In post-febrile debility, however, they were of great value He had seen very good results with lupus in patients who did not pigment The hæmobactericidal reaction was a test requiring the utmost delicacy and experience in observation, and was not likely to be of much practical use The area to be exposed was a problem requiring the most careful investigation He had been very disappointed with the clinical results in cases treated by the piecemeal methods Light treatment was of very great value in some chronic eye affections especially phlyctenular conjunctivitis, corneal ulceration, and some cases of tuberculous irido-cyclitis.

Dr **Katherine Gamgee** said that it was the children under four or five whose reaction was so different from that of adults Older children than this gave a more or less adult reaction She thought in rickets the time factor was important Light sometimes worked amazingly where cod-liver oil failed, and was especially good for nervous children, and for nocturnal enuresis in particular. It was valuable in convalescence, and to prepare children for nose and throat operations In anterior poliomyelitis, unless the child were submitted very early, it was disappointing A small area of skin only should be dosed, and the place constantly varied The body cells easily became stale, quite apart from pigmentation There was an optimum for each case She recommended courses of about six weeks, followed by a rest and another course Light was a highly stimulating drug, of which the body cells soon became tired

UNIVERSITY OF ST ANDREWS—An anonymous nor has given £100,000 to the University, out of which e sum of £40,000 is to be set aside to found residential holarships.

NAVAL MEDICAL COMPASSIONATE FUND—A meeting the subscribers of this Fund will be held at 11 30 A.M. on pril 21st, at the Medical Department of the Navy, Queen ne's Chambers, Tothill-street, Westminster, S W 1, to ect six Directors of the Fund

ROYAL NAVY MEDICAL CLUB—The annual dinner ill take place at the Trocadero Restaurant, Piccadilly rcus, W 1, on Thursday, April 21st, at 7 30 P.M., for 8 P.M. embers who wish to be present are asked to inform the on. Secretary of the Club, Queen Anne's Chambers, Tothill-reet, London, S W 1, not later than seven clear days before at date

CONFERENCE ON MATERNITY AND INFANT WELFARE der the auspices of the Central Council for Infant and Child elfare, and in connexion with the National Baby Week lebrations, a conference will be held in the hall of the tish Medical Association, Tavistock-square London, n July 5th to 7th, under the presidency of Mr. Neville amberlain, Minister of Health

NORTH-WESTERN TUBERCULOSIS SOCIETY—At the st meeting of this society, to be held on Thursday, rch 31st, at 3 15 P.M., at the Public Health Laboratory, rk place, Oxford-road, Manchester, Prof Lyle Cummins will ad a paper on the Bearing of Recent Laboratory Research Clinical Conceptions in Tuberculosis The meeting will open and the attendance of medical practitioners is nted.

SOCIETY FOR THE PROVISION OF BIRTH CONTROL NICS.—On Wednesday, March 30th, at 5 30 P.M., Lord wson will take the chair at a meeting in aid of this ciety to be held by permission of Capt Gerard Leigh at , Grosvenor-street, London, W 1 The speakers will be Margaret Sanger (president of the American Birth ntrol League) and Mr. Harold Cox

CLEAN AIR WEEK—Smethwick in Staffordshire ld a "Clean Air Week" from March 14th to 19th, during ich period an effort was made to keep the atmosphere free m smoke The campaign included demonstrations, tures, and other forms of propaganda in which the rporation Gas and Health Departments, and most of e large industrial firms in the district coöperated

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSO-TION—The objects of the Association are (1) to support every legitimate way efforts made to improve the status the profession at large, especially of those holding Irish grees or diplomas in medicine, (2) to promote social ercourse among those holding medical qualifications tained in Ireland and others who have studied at an Irish hool of medicine The annual meeting and festival nner takes place in London on St Patrick's Day, and was d this year on Thursday, March 17th, at the Savoy Hotel, ndon, the President, Sir William de Courcy Wheeler, ng in the chair There was a good attendance, many ies being present at what proved a very enjoyable ction There were only two toasts, "The Guests" d "The Prosperity of the Association." The toast of The Guests" was proposed in a witty and unconventional eech by Colonel G A. Moore, A.M S (retd), who inter-rsed a cordial welcome of the guests with amusing h stories Vice-Admiral Sir Frederick Field, Sir Squire gge, and Dr Bertram Watson returned thanks for the sts. Vice-Admiral Field held closely the attention of company with a description of the happiness and sperity that followed health developments in all ts of the world He spoke of his experiences when command of the Special Service Squadron during the ld cruise of 1923–24, and instanced the vast benefits ich had been received by populations in the ultimate ions of the Empire through the discoveries of medicine through the faithful ministrations of doctors The st of the Association was proposed by Dr Kenneth Fraser, o in coupling it with the name of the Chairman, spoke Sir William Wheeler's valuable work in surgery and his tion both in public and private Sir William Wheeler, eply, pointed out, with special reference to the position the Irish Free State, that it was the great object of the sident, fierce fighter as he had been in the past, to main- the conditions of peace and good feeling which were ad leading to prosperity At the request of the company onel Moore continued his selection of Irish stories, which various intervals in the proceedings were interspersed h songs from Miss Veronica Mansfield and Mr Richard tson, accompanied by Miss Nellie McCartney The honorary secretary of the Association, responsible the dinner, was Dr F R Holmes Meyrick

UNIVERSITY OF DUBLIN—Amongst the recipients of honorary degrees at the Summer Commencements on June 28th will be Sir Humphry Rolleston and Prof Harvey Cushing

HARVEIAN SOCIETY OF LONDON—An ordinary meeting of this society will be held in the Paddington Town Hall on Thursday, April 7th, at 8 30 P.M., when a discussion on the treatment of Graves's disease will be opened by Mr T P Dunhill, to be followed by Dr C M Wilson and others.

UNIVERSITY OF DURHAM—It is proposed that the honorary degree of Doctor of Civil Law shall be conferred at the June Convocation upon Sir James Berry, consulting surgeon to the Royal Free Hospital, London, and President of the Royal Society of Medicine

UNIVERSITY COLLEGE HOSPITAL—At the annual general meeting on March 24th it was stated that nearly 10,000 visits were paid to mothers in their own homes by the health visitors from the Infant Welfare Department For the sum of £20,000 a building at the back of the Obstetric Hospital could be converted into headquarters for the Centre Out-patients' attendances at the hospital approached 250,000 during the year, and the number of in-patients increased by about 600

HOSPITAL OF ST CROSS, RUGBY—In memory of her husband Mrs Arthur James is presenting to this hospital a complete out-patients' department, with minor operating, dental, and recovery rooms The block which is to be built forthwith will be arranged to allow of extension

A SHEFFIELD HOSPITAL AREA.—A conference of local hospital authorities has decided in favour of a system of coöperation and coördination, with Sheffield as the pivot of the scheme The area concerned includes Barnsley, Mexborough, Doncaster, Denaby Rotherham, Worksop, Retford, Bakewell, and Chesterfield

MEDICAL STUDENTS VISIT A SPA—Students from the University of Birmingham accompanied by Prof Douglas Stanley and other members of the staff, went to Bath on March 19th and visited the bathing establishment and Royal Mineral Water Hospital A short address was given by Dr A Gordon Watson, and cases were demonstrated by Dr Rupert Waterhouse, Dr R G Gordon, Dr James Lindsay, Dr H Clulow Nixon, and Dr J Litt

MANGANESE POISONING—At Stroud County Court on March 13th Judge Alan Macpherson recorded agreements for the payment of lump sums of £800 and £750 respectively, as compensation to two men suffering from manganese poisoning contracted whilst at work for a paint and varnish manufacturer

MILK PASTEURISATION AND HUMANE SLAUGHTER—On March 17th a large party of veterinarians and medical men set out in charabancs from the Royal College of Veterinary Science and visited the pasteurising plant of Messrs Curtis Bros and Dumbrill, at Valley Farm Dairy, Streatham The arrangements were made by Prof F T Hobday, and amongst those present were Sir D'Arcy Power, Major-General Sir John Moore, Prof G H Wooldridge, Dr E G Gibbs-Smith, and Lieut-Colonel T Dunlop Young After being shown the working of the pasteurising plant, which is a model of efficiency and is always open to public inspection, the party was entertained to tea by Messrs Curtis Bros and Dumbrill. Mr P B Tustin, in welcoming the guests, asked for their interest in the Young Farmers' Club Movement inaugurated by United Dairies to teach the sons and daughters of farmers kindness to animals, clean and economical milk production, and the proper feeding and judging of dairy animals Prof Hobday, Sir John Moore, Prof Wooldridge, and Colonel Young expressed their satisfaction with the conditions of work at the Valley Farm Dairy, and thanked Mr Tustin for the careful explanation of methods which had been given After leaving the dairy, the party visited a local butcher's shop where Mr Weinberg gave a demonstration of his method of slaughtering cattle for Jewish consumption According to Jewish law the animal must be killed by cutting the throat, only one cut being made, and no previous stunning being allowed This involves extension of the head on the neck, and in killing bullocks it is usual to tether their legs, throw the animals heavily to the ground, and wrench back their heads A horn is often broken off during this procedure Mr Weinberg's apparatus is designed to obviate brutality It consists of a wooden cage pivoted on a frame, the cage, when the animal has entered, is suddenly reversed so that the bullock is now resting on its back. At this stage it is probably confused and dizzy and the neck is fully exposed to the knife, no wrenching being necessary This method was satisfactorily demonstrated and was generally considered more humane than those in use at present The limitations of the Streatham slaughter-yard unfortunately made it impossible to withdraw the carcass yard unfortunately made it impossible to withdraw the carcass expeditiously, so that the time occupied in the whole performance could not be estimated exactly bad faith and negligence The distinction is not revolutionary Another suggestion was made by Lord Sandhurst in the House of Lords debate on Earl Russell's motion (on Feb 24th)—namely, that the damages recoverable for wrongful certification should be limited to the period of one month's detention, the fresh report at the end of the month being deemed to interpose a fresh responsibility. This would save the award of colossal damages as in the Harnett case (which is still before the House of Lords on legal questions concerning the effect of the Statute of Limitations and the Public Authorities Protection Act), but it would not have saved Dr Smith or Dr Watson from the annovance and expense of defending themselves against Mr Hume-Spry. The proper remedy is to realise that the reception of a lunatic takes place upon the direction of what the Act calls a "judicial authority" It is the magistrate's order, not merely the doctor's opinion, which counts The authority of the magistrate was interposed by Parliament in days when the public, alarmed by the stories of Victorian novelists, believed madhouses to be full of sane persons illegally and improperly detained The recent Royal Commission, Earl Russell has said found no case in which a man could be said to have been wrongfully certified The magistrate is, under the modern administration of the Lunacy Law, no longer necessary as the protector of the liberty of the subject But if he is retained, he must take the responsibility for his judicial actions And the public must decide whether it wishes to allow lunatics to wander at large without restraint, or whether it will support the medical profession, whose uncomfortable duty it is to contribute an expert opinion upon the question of restraint

Dr Percy Smith and Dr A. H Watson are both members of the Medical Defence Union, and the counsel appearing for them were instructed by Messrs Hempsons, the solicitors to the Union

Medical News.

University of Oxford —Under a bequest to the University made by the late Dr Gustave Isidore Schorstein, assistant physician to the London Hospital, a Schorstein Research Fellowship in Medical Science is to be established and it is probable that an election will be made during the Summer Term The proposed conditions were published in the *Oxford University Gazette* of March 16th

Dr Arthur Duncan Gardner, who is engaged in research in the department of pathology and bacteriology, and is bacteriologist in charge of the standards department of the Medical Research Council, has been elected to a special supernumerary Fellowship at University College

University of London Course in Mental Deficiency —A course of lectures for medical practitioners is to be held at the University of London, under the auspices of the Central Association for Mental Welfare, from May 23rd to 28th The lecturers include Dr A F Tredgold, Dr F C Shrubsall, Prof Cyril Burt, D Sc, and Dr W Norwood East Particulars may be had from Miss Evelyn Fox, c/o the University Extension Department, Imperial Institute-road, S W 7

Examiners in Nursing —At a recent meeting of the Senate the following were appointed examiners for the Diploma in Nursing —(1) Scientific Basis and General Principles of Nursing Miss T J Dillon, Miss W A Leyshon, Prof R H A. Plimmer, Prof C K Tinkler, Mr H P Gilding, Miss Catherine Lewis, M S, Dr W R Spurrell, Prof William Wright, F R C S, Prof W Bulloch, M D, F R S, Dr R G Canti, Dr C E Dukes, Dr Joan Ross, Dr J. A H Brincker, Dr W W Jameson, Dr Charles Porter, Dr Ruth E Proctor, Mr F A P. Aveling, D D, Prof Beatrice Edgell, Mr C J Flügel, and Dr J A Hadfield, (2) History of Nursing to 1919 and Nursing Ethics Miss Dorothy Coode, Miss Gertrude Cowlin, Mrs Lucy Ridgly Seymer, and Miss Frances Sheldon (3) General Nursing: Miss M A Gullan, Dr C E Lakin, Miss E McManus, and Miss G M Simms, (4) Obstetric and Gynæcological Nursing Lady Barrett, M S, Mr A [illegible] Bourne, F R C S, and Miss N Newall; (5) Nursing of Children Miss E Cockeram, Miss A. M Coulton, and Miss Alice M Machell, (6) Mental Nursing Miss E L. Macaulay, Dr W. F Menzies, Prof G M Robertson, P.R C P Edin, and Miss M M Thorburn, (7) Fever Nursing and Epidemiology Miss J H Balsillie, Dr F F. Caiger, Dr Joseph Cates, and Miss L F Pearce, (8) Elementary Economics, Sociology and Hygiene : Dr Joseph Cates, Mrs E A Warren, and Miss H Weir, (9) Hospital Administration Sir Cooper Perry, M D, Miss Lloyd Still, Mr E W Morris, and Miss E M Musson, (10) Methods of Teaching Prof C L Burt and Miss K L Johnston

University of Manchester —At recent examinations the following candidates satisfied the examiners —

Diploma in Public Health —N S Craig and T N Fisher

Diploma in Psychological Medicine (Part I) —Mary C Luff.

Royal Institute of Public Health —At the Whitsuntide Congress to be held at Ghent, Belgium, from June 1st to 6th, a special section will be devoted to industrial hygiene, and there will be discussions on industrial cancer, rheumatism, and temperature and humidity in industrial health Dr A Vernon Davies, M P, will be glad to hear from medical men and employers who would like to take part, communications may be addressed to him at the House of Commons, London, S W 1

Fellowship of Medicine and Post-Graduate Medical Association —On Thursday, March 31st, at 5 P M, Dr C T W Hirsch will lecture and give a demonstration on Emergencies in Anæsthetics at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square On the same afternoon at 3 P M Mr H L Attwater will give a clinical surgical demonstration at the All Saints' Hospital, Vauxhall Bridge-road, S W Both lecture and demonstrations will be free to members of the medical profession From March 28th to April 9th the Queen's Hospital for Children will hold a special course, a programme occupying the whole day has been arranged and the chief feature of instruction at this hospital is the showing of cases rather than formal lectures Also beginning on March 28th and continuing for two weeks, the Royal Eye Hospital staff will undertake a series of afternoon demonstrations on the Diagnosis and Treatment of Diseases of the Eye. The Fellowship can arrange practical courses in obstetrics and anæsthetics, and can also make arrangements for clinical assistantships in gynæcology Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W 1

The late Dr C E Humphreys —The death has taken place of Dr Charles Evan Humphreys, of Macifod, near Welshpool, coroner for North Montgomeryshire, and medical officer of health and school medical officer for the county After studying at the London Hospital, he qualified L S A in 1883 and M R C S in 1884, taking the D P H in 1911 Formerly in private practice at Welshpool Dr. Humphreys gave this up nearly 20 years ago to become medical officer of health He effected great improvements in the health service of the county, more especially in the provision of district nurses and the medical inspection of schools During the war he served in the R A M C (with the rank of Lieut -Colonel) and acted as sanitary officer of the 68th Welsh Division and specialist sanitary officer at the Ripon Reserve Centre of the Northern Command His two sons were also in the army

Sussex Hospitals —The Royal Alexandra Hospital for Sick Children, Brighton, admitted 1055 patients last year and 587 operations were performed At the end of the year the general account was overdrawn by about £320, but money is being collected to build a new wing in memory of Queen Alexandra —The New Sussex Hospital for Women and Children dealt with 491 in-patients and 13,403 out-patient attendances during the year Income slightly exceeded expenditure, and the construction of a new wing, which will cost £10,000, is in progress —The household box scheme has proved the salvation of Worthing Hospital, and £1432 was collected by means of it There was a small deficit on the year's working, and the governors had to draw on capital to pay for extensions —No less than 3931 women received attention from the Sussex Maternity and Women's Hospital at Brighton during 1926, 1100 being attended in their own homes, 1173 at the antenatal clinic, 702 in the out-patients' department, 71 in wards at the Hove branch, and 879 in the wards at Brighton, where 333 children were born The governors consider that the hospital has outgrown its strength and are proceeding with enlargement —As we have already stated, the Royal Sussex County Hospital is this year celebrating its centenary, and an appeal for £100,000 is being made to enable the governors to carry out large alterations —A scheme has been started for increasing accommodation at Petworth Hospital at a cost of £3000 Lord Woolavington is giving £1000 on condition that the extension is at once begun

Plymouth, South Devon and East Cornwall Hospital —Cas H S
Poplar Hospital for Accidents, East India Dock road, Poplar, E —Second Res O £175
Reading, Royal Berkshire Hospital —H S £150
Rochford Hospital —Asst Res M O £175
Samaritan Free Hospital for Women, Marylebone road, N W —Hon. Surg to Out patients
Sheffield Royal Hospital —Sen Cas O £150
Sheffield Royal Infirmary —H S At rate of £80
St John's Hospital, Lewisham, S E —Res Cas O At rate of £100
University of London, South Kensington, S W —Chair of Anatomy £1000
York County Hospital —H P £150

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Porlock (Somerset)

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, for the Districts of the Bangor, Conway, Llandudno and Colwyn Bay and Llanrwst County Courts (Circuit No 29) Applications should reach the Private Secretary, Home Office, not later than April 6th

Births, Marriages, and Deaths.

BIRTHS

LKINGTON —On Feb 23rd at Bruton, Somerset to Kathleen wife of Dr Guy W Elkington—a son

IGGINS —On March 15th, at a nursing home the wife of Lionel G Higgins, F R C S of Linkwood, Woking of a son

ANTON —On March 17th, at Bovington Camp, Wareham Dorset, the wife of Captain D F Panton, R A M C, *of a son*

MARRIAGES

AYDON—RICHMOND —On March 17th, at St Peter's Church, Cranley gardens, Leonard John Haydon, M R C S, L R C P, to Susan Eleanor Richmond, youngest daughter of Mr and Mrs D C Richmond, of Cornwall-gardens, S W

DEATHS

URD —On the 21st inst, at Mornington, Richmond-road, Malvern Link, Cyril Prichard Burd, M R C S, L R C P, aged 51 years

AY —On March 17th, suddenly, at Caunce street, Blackpool Percy Howard Day, L R C P, L R C S Edin., aged 70

ALMER —On March 15th after two days' illness, (pneumonia following influenza), at Marine avenue, Hove, Harry Palmer, M R C S, L R C P Lond

B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages and Deaths

RICE IN SHREDDED SUET —At Stoke-on-Trent on arch 18th the Potteries stipendiary magistrate dismissed e cases against four firms summoned for selling shredded et adulterated with an excessive quantity of ground rice HE LANCET, Feb 12th, p 372) The prosecution had leged that 15 per cent of ground rice was ample, and that samples taken from the defendants' shops this quantity d been exceeded The magistrate held that 15 per cent s sufficiently high, but suggested that in view of manufac- ring difficulties food inspectors should not trouble about atively small percentages over that standard

SPINNER'S CANCER —Dr J C Beckitt, medical officer of health for Leigh, Lancashire, stated on March 18th, in a lecture at Leigh, that since the war 539 cases of spinners' cancer had been traced in Lancashire and Yorkshire alone Between 1911 and 1920, 486 males had died of cancer of the scrotum, and of these 100 were operative cotton-spinners, whilst the remainder included 52 general labourers, 41 chimney sweeps, 11 dock labourers, 10 chemical workers, 11 coal miners and 11 gasworks hands Deaths were thus more prevalent among cotton-spinners than any other workers The disease usually showed itself between the ages of 35 and 55, and not until the person had been employed in the mule room for ten years at least Change of occupation was no guarantee that it would not occur Indeed the malignant growth might not appear until a considerable time after employment in a mule room had ceased The greater the amount of oil soaking into the clothing the greater was the danger Cleanliness was all essential, and Dr Beckitt recommended the wearing of protective clothing in the form of an apron impervious to oil

Notes, Comments, and Abstracts.

PYELOGRAPHY AND ITS VALUE IN DIAGNOSIS

Being an Address delivered before the Brighton and Sussex Medico-Chirurgical Society

By F E Fielden, F R C S Edin, M R C S Eng,

ASSISTANT SURGEON, HOVE GENERAL HOSPITAL AND ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SENIOR ASSISTANT, UROLOGICAL DEPARTMENT, MIDDLESEX HOSPITAL

PYELOGRAPHY is the radiographic examination of a solution opaque to X rays, which has been introduced into the renal pelvis and ureter I know of no branch of surgery that possesses more accurate means of diagnosis than urology, and, of these, I believe pyelography to be one of the most important

Abdominal pain, whether acute or chronic, may be due to some pathological condition of the upper urinary tract, although urinary symptoms and gross changes in the urine are absent On the other hand certain cases present urinary symptoms although the causative lesion is to be found outside the urinary tract.

It is in such cases of obscure ætiology that pyelography is of special assistance, and whenever there is abdominal pain of doubtful origin pyelography should be done, unless a diagnosis can be established by other less elaborate and special means

It was in 1905 that Hurry Fenwick introduced the opaque ureteric bougie which preceded the use of a solution for rendering the outline of the pelvis and ureter visible in radiograms The value of the method was slow to be appreciated, and at first received but scant attention, and even now, although pyelography has received wide recognition, it is not, I think, employed often enough nor is its value sufficiently understood It should not be looked on as an infallible method of arriving at a correct diagnosis, but, as with every other method of urological investigation, the diagnosis should be reached only after careful consideration of both the radiographic and the clinical picture In certain instances, however, pyelography may be the *only* means, short of an exploratory operation, of solving a clinical problem

Interpretation of the Pyelogram

In cystoscopy the greatest difficulty lies in the interpretation of the picture, and the same is true in pyelography It is, therefore, essential to become thoroughly familiar with the normal pyelogram, for by so doing we shall more readily appreciate deviations from normal and consequently be in a position to state with confidence that a given pyelogram represents a pathological condition of the pelvis or kidney This is very important For example a man presents himself with a history of hæmaturia, radiography and bacteriological examination of the urine do not throw any light on the cause, and cystoscopy fails to reveal any lesion in the bladder or ureteric orifices Not infrequently, in such a case, the patient is told to come up again when he is bleeding so that the operator may see which kidney is giving rise to the hæmorrhage In my opinion this enforces an unnecessary delay, which may be greatly jeopardising the patient's chance of recovery There should be no waiting, a right- and left-sided pyelogram should be taken so that many of the causes of hæmaturia of renal origin can be at least eliminated, and the cause of the symptoms may, perhaps, be dramatically revealed

In reading a pyelogram the following points should be borne in mind The normal pelvis is trumpet-shaped, and is set almost vertically on the upper end of the ureter, the calyces project from it laterally, some of them in an antero-posterior direction The normal major calyx divides into minor calyces, which have a cup-shaped extremity in the hollow of which lies the pyramid Calyces, seen on end, appear as round, darker patches, and should not be mistaken for calculi Normally the catheter passes from the ureter to the pelvis and then into the upper calyx, the expansion of the ureter into the renal pelvis is a gradual transition, and there should be no line of demarcation It should be remembered that the right pelvis lies at a slightly lower level than the left, when the left is lower than the right there is some pathological reason for it, when either lies below the level of the third lumbar vertebra, the condition is abnormal

In addition to the ordinary anteroposterior view of the kidney, a lateral picture may be taken; it will then be noticed that in this pyelogram the kidney pelvis lies in the shadow of the second and third lumbar vertebræ, and the calyces are spread out laterally from the pelvis The pelvis appears

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole street, W

MONDAY, March 28th —8 P M, ODONTOLOGY Paper Mr D Stewart (Manchester University) Some Aspects of the Innervation of the Teeth Casual Communication, Mr T B Layton Osteomyelitis of the Upper Jaw in Scarlet Fever

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S W

TUESDAY, March 29th —5 P M, Sir Charlton Briscoe The Muscular Mechanism of Respiration and its Disorders (Last Lumleian Lecture)

ROYAL NORTHERN HOSPITAL POST-GRADUATE COURSE

TUESDAY, March 29th —3 15 P M, Dr E G B Calvert The significance of (1) Glycosuria, (2) Albuminuria Main Points in Diagnosis and Treatment

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C

MONDAY, March 28th —5 P M, Mr C. E Shattock Veins and Lymphatic Vessels

FRIDAY, April 1st —5 P M, Prof Sir Arthur Keith The Anatomy and Physiology of the Gall-bladder

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, March 28th —10 A M, Mr MacDonald Genito-Urinary Operations 2 P M, Mr Addison Surgical Wards 4 P M, Dr Saunders Jaundice

TUESDAY —10 A.M., Medical Registrar Clinical Methods 12 noon, Dr Burrell Chest Cases 2 P M, Mr Sinclair Surgical Out-patients

WEDNESDAY —10 A M, Dr Owen Medical Diseases of Children 2 P M, Dr Scott Pinchin Medical Out-patients Mr Donald Armour Surgical Wards

THURSDAY —10 A M, Dr Stewart Neurological Department 12 noon, Mr Simmonds Demonstration of Fractures 3 P M, Sir H Simson Gynæcological Ward

FRIDAY —11 A M, Dr Pritchard Modern Methods in Medicine 2 P M, Mr Sinclair Surgical Out patients

SATURDAY —9 30 A M, Dr Burnford Bacterial Therapy 10 A M, Dr Owen Medical Diseases of Children

Daily —10 A M to 5 P M, Operations, Medical, Surgical, Special, Out-patient Departments (Saturdays, 10 A M to 1 P M)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W

MONDAY, March 28th, to SATURDAY, April 2nd —FELLOWSHIP OF MEDICINE Special lecture demonstration at the Medical Society, 11, Chandos-street, Cavendish-square, W, at 5 P M, on Thurs Dr Hirsch Emergencies in Anæsthetics Open to all members of the medical profession, without fee —ALL SAINTS' HOSPITAL, Vauxhall Bridge-road, S W Thurs, 3 P M, Mr H L Attwater Special demonstration (genito urinary), free to members of the medical profession —LONDON TEMPERANCE HOSPITAL, Hampstead road, N W 4 30 to 6 P M, General Practitioners course Medicine, Surgery, and the Specialties —QUEEN'S HOSPITAL FOR CHILDREN, Hackney road, Bethnal Green, E All day course the chief feature of which will be the showing of cases —ROYAL EYE HOSPITAL, St George's Circus, Southwark, S E Afternoon demonstrations on the diagnosis and treatment of diseases of the eye —ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W Comprehensive course Morning and afternoon sessions including Saturday

Further information from the Secretary

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY March 28th —10 A M, Surgical Clinic 2 P M, Medical Cases in the Wards 2 30 P M to 5 P M Medical, Surgical, and Gynæcological Clinics Operations

TUESDAY —2 30 P M to 5 P M, Medical, Surgical, Throat, Nose, and Ear Clinics Operations

WEDNESDAY —2 30 P M to 5 P M, Medical, Skin, and Eye Clinics Operations

THURSDAY —11 30 A M Dental Clinic 2 30 P M to 5 P M, Medical Surgical, and Ear, Nose and Throat Clinics Operations

FRIDAY —10 30 A M, Throat, Nose, and Ear Clinics 2 30 P M to 5 P M Surgical, Medical, and Children's Diseases Clinics Operations

On TUESDAY, March 29th, and THURSDAY, March 31st, at 2 30 P M, there will be special demonstrations of Medical and Surgical Cases by Mr W E Tanner and Dr A J Whiting respectively

Also on FRIDAY, April 1st, at 4 30 P M, Dr L R Yealland will demonstrate on Selected Cases of Nerve Disease

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn road, W C

FRIDAY, April 1st —4 P M, Dr Dan McKenzie Diathermy in the Treatment of Cancer in the Pharynx

HOSPITAL FOR SICK CHILDREN, Great Ormond street, W C

THURSDAY, March 31st —4 P M, Mr Tyrrell Gray Abdominal Pain

LONDON SCHOOL OF DERMATOLOGY, St John's Hospital, 49, Leicester square, W C

TUESDAY, March 29th —5 P M, Dr G B Dowling Scleroderma Neurofibromatosis

PEOPLE'S LEAGUE OF HEALTH (Sims Woodhead Health Lectures)

MONDAY, March 28th —6 P M (at the Medical Society of London 11, Chandos street, W), Sir Robert Armstrong Jones Brain and Nervous Systems

ANCOATS HOSPITAL, POST GRADUATE LECTURES, Mill-street, Manchester.

THURSDAY, March 31st —4 15 P M, Dr W J S Reid Tabes Dorsalis

MANCHESTER ROYAL INFIRMARY POST GRADUATE LECTURES

TUESDAY, March 29th —4 15 P M, Mr H H Rayner Pulmonary Embolism

FRIDAY, April 1st —4 15 P M, Mr C Roberts Demonstration of Surgical Cases

ST MARGARET'S HOSPITAL FOR WOMEN, Acomb street, Whitworth Park, Manchester

WEDNESDAY, March 30th —12 noon, Mr A C Magian Demonstration Operation on Ovarian Grafting

Appointments.

GILMORE, E R W, M B, Ch B Manch D P H Lond and Manch D T M Liverp, has been appointed Assistant School Medical Officer to Education Committee, City of Salford

READER, N L M, M D Lond, F R C S Eng, Surgeon to the Barry Accident and Surgical Hospital

Surgeons under the Factory and Workshop Acts PURCELL, M, M B, Ch B N U I (Silsden, York), KILLICK, C F R, M B, Ch B Brist (Williton, Somerset), RICHMOND, A H D O (Presteign, Radnor) M B, Ch B Edin HOBBS, F B M D, B Ch Camb (Farnham)

Vacancies.

For further information refer to the advertisement columns

Barrow in Furness, North Lonsdale Hospital —H S £150

Belgrave Hospital for Children, Clapham road, S W —Hon Radiologist 50 guineas

Birkenhead General Hospital —Cas H S £100

Brentwood, Essex, High Wood Hospital for Children —Jun Asst M O £500

Carlisle Union and Carlisle Rural District Council —M O About £800

Charing Cross Hospital, W C —Asst Obstet P

Chelsea Hospital for Women, Arthur street, S W —Hon Genito Urinary S

Exeter, Royal Devon and Exeter Hospital —Res Cas O At rate of £100

Glasgow, Gartloch Mental Hospital, Gartcosh —Jun Asst M O. At rate of £300

Grimsby and District Hospital Sec Supt £300

Halifax Royal Infirmary —Third H S At rate of £100

Hertford County Hospital —H P At rate of £150

Hospital for Epilepsy and Paralysis, Maida Vale, W —Res M O and H P At rate of £150 and £100 respectively Also Hon Gynæcologist

Hospital for Sick Children, Great Ormond street, W C —H S. Also H P and Asst Cas O Each at rate of £56

Hull Royal Infirmary —Hon Phys and Hon Asst S to Nose, Throat, and Ear Dept

Leeds General Infirmary —Asst M O in Venereal Dis Dept. £500

Liverpool and District Hospital for Diseases of the Heart, 34, Oxford street —H P

Malayan Medical Service —M O's $500 per mensem

Manchester, Monsall Hospital for Infectious Diseases —Two Jun Med Assts Each £350

Maudsley Hospital, Denmark Hill, S E —Asst M O £504

Metropolitan Hospital, Kingsland road, E —H P's, H S's, and Two Cas O's At rate of £100

Middlesex Hospital, Mortimer-street, W —Asst Radiologist £100

Northumberland County Council and Urban District Council of Newburn —Asst County M O H, &c £700

Paddington Green Children's Hospital, W —H P and H S. Each £150

THE SALE OF MEAT.

[illegible]ENCE AT ROYAL SANITARY INSTITUTE

[illegible]NCE on the Public Health (Meat) Regulations [illegible] came into force on April 1st, 1925, was held at the Royal Sanitary Institute Alderman W [illegible] (City of London) occupied the chair.

[illegible] **Brennan de Vine** (Veterinary Superintendent, [illegible]) said that lack of uniformity in carrying out [illegible]ions in the different administrative areas had [illegible]derable dissatisfaction in the meat trade The [illegible] of meat should include poultry, rabbits, cooked [illegible]ed meat The adhesive surfaces presented by [illegible] rabbits and butter caused dirt to stick to them more [illegible] butchers' meat often sold from the same shop, this [illegible] treatment caused adverse comment Cooked meat [illegible] removed from a tin were a greater source of danger [illegible] poisoning than butchers meat.

[illegible] requirement of giving notice of slaughter saved the [illegible] of the meat inspector Illicit slaughtering was, how[illegible] going on in places other than recognised slaughter[illegible], and local authorities and magistrates should be [illegible] by the Ministry of Health that this was a serious [illegible]. Notification of disease in slaughtered animals was [illegible] evaded by cottagers, small-holders, and farmers [illegible] slaughtered a few animals at intervals The [illegible] requiring that a slaughter-house should be used [illegible] slaughtering had enabled the Birmingham [illegible] to improve conditions in a number of places used [illegible] day in the week as a slaughter-house, on another as [illegible]-house, and for the rest of the week as a lumber store. [illegible] power to prohibit the use of a slaughter-house for gutting and tripe-cleaning, in order to prevent the fecal [illegible] of carcasses, was in itself worth the whole of [illegible] entailed in carrying out the regulations Only [illegible] local authorities had been able to persuade their [illegible] to accept the system of marking every inspected [illegible], yet this was widely carried out on the continent.

[illegible] and shops should be required to provide glass [illegible], he had seen in Rotterdam meat stalls in which [illegible] meat was kept and exhibited behind glass Meat [illegible] should be licensed, to protect the meat all the time [illegible] storage-places should be registered so as to facilitate [illegible]. In Birmingham there was no meat hanging [illegible] a stall or shop, although it was recognised that a [illegible] authority had no power to compel the provision of [illegible] windows, the meat was kept behind glass in 90 per cent. [illegible] shops The efforts of local authorities to obtain [illegible] fronts had been nullified by Circular 604 which stated [illegible] not all butchers' shops need be so provided But all [illegible] who had studied the question from the economic [illegible]point kept their meat behind closed glass windows [illegible] prevented the meat losing its bloom when it had to [illegible] at a cheaper rate; the loss of weight by evaporation [illegible] was avoided and the meat kept longer In Birming[illegible] two firms, one with 50 branches the other with 40 [illegible], had provided fixed closed glass windows No loss [illegible] occurred when the practice of hanging up meat [illegible] shops was given up Circular 604 stated that where [illegible] to be kept near to an open window the general rule [illegible] be that it should be covered with clean muslin or other [illegible] material, but when a brisk trade is being carried [illegible] precaution may have to be suspended so that meat [illegible] readily accessible No definition of brisk trade was [illegible]. Some butchers, if shouting their wares in a crowded [illegible], would claim they were carrying on a brisk trade [illegible] though customers were few The supposition that [illegible] was a brisk trade every Saturday night had been [illegible] to cover Friday night, then Thursday night, and [illegible] every night in the week The regulations dealing [illegible] the transport and handling of meat were admirably [illegible] out by the wholesalers.

Discussion.

[illegible] **Charles Porter** (Medical Officer of Health, [illegible]one) held that meat was an article of food which [illegible] not be sold in the gutter even from behind a glass [illegible]. Meat could be sold without being displayed, in [illegible] States it was only in the poorer quarters of large [illegible] that meat could be seen on sale at all. When the [illegible] were drawn up they had caused the usual [illegible] produced by all new legislation, the public health [illegible] had hoped too much, the butchers had feared too [illegible] from them The benefits they would produce were [illegible]ginning.

[illegible] J. S. **Lloyd** (Chief Veterinary Inspector, Sheffield) [illegible] that no food should be displayed for sale in such [illegible] as to allow contamination. He had experienced [illegible] owing to the absence of a definition of a shop [illegible] in Sheffield was only carried out for horseflesh [illegible] abroad He had persuaded stallkeepers to put glass tops over their counters Flies could be got rid of in shops by installing fans

Mr J A. **Dixon** (Veterinary Inspector, Leeds) said that the right of pig-keepers and small-holders to slaughter elsewhere than in a slaughter-house resulted in much unsatisfactory meat being consumed and the wholesalers complained The notification of emergency slaughter was largely ignored He disapproved of the blowing of meat by any method Meat-marking would shield from prosecution butchers who had bought meat with deep-seated undetected disease No butcher repented of having fitted a fixed glass window It should be made clear that retailers' men were required to wear protective clothing when handling meat

Mr W G **Collinge** (National Federation of Meat Traders Association) expressed his personal view that all foodstuffs should be required to be protected from contamination. Many butchers believed that meat should be exposed to a draught and so preferred the open window The way in which meat was sold in many parts of London to-day was a disgrace

Councillor J **Edwards** (Hornsey) agreed In some shops on Saturday nights meat was hung six to nine feet outside the shop on the edge of the spring blinds

Mr T **Topping** (Chief Sanitary Inspector, Rochester) thought that the regulations made as big a step forward at one time as could be expected The staff usually provided did not enable the regulations to be enforced

Lieut.-Colonel T **Dunlop Young** (Chief Veterinary Inspector, Smithfield Market) said that compulsory meat-marking should be instituted to prevent the waste of time and money resulting from meat being inspected officially several times

Mr. **Brennan de Vine** in reply, said that the inspector who visited many butchers' shops in a day could give a sounder opinion on the way to prevent contamination by flies and dirt than the butcher who remained in one shop all day long The open shop had the most flies Sunday morning and late Saturday night trade should be wiped out, there was none in Birmingham

On the motion of Colonel **Young**, seconded by Dr G. **Clark Trotter** (Medical Officer of Health, Islington), it was resolved that application should be made to the Ministry of Health for a complete revision of the Meat Regulations, this revision being made after consultation with all the trades concerned

THE QUALIFICATIONS OF PUBLIC ANALYSTS

The Minister of Health has laid down that if a person appointed as public analyst does not already hold such an appointment he must provide documentary evidence of competence in analytical chemistry, therapeutics, and microscopy. The Minister will accept the Fellowship of the Institute of Chemistry with the certificate granted by that body in the chemistry (including microscopy) of food, drugs, and water The medical diploma of a registered practitioner is accepted as sufficient evidence of competence in therapeutics and microscopy, but he will be required to furnish evidence of competence in analytical chemistry These requirements recognise the limitations of the chemist with the usual training who does not necessarily know anything about therapeutics or the microscopy of food and drugs, and of the medical man whose chemistry is apt to be a thing of the past but who has had considerable training in therapeutics and microscopy.

DEAFNESS EXPLAINED [1]

Mr Balbi in a short pamphlet with this ambitious title makes a reasonable attempt to explain shortly to fellow laymen the principles of sound and of hearing, and the various types of artificial aid. Serious criticism must however, be directed to a paragraph to the effect that "where the deafness has been gradual, hearing appliances can be tried as a means of relief without consulting a doctor, after all they can do no harm even if they are used" In the next paragraph he advises the reader to ascertain positively that his deafness is not due to wax before purchasing an appliance Now he does not say how this can be done without the aid of a doctor, and it is a fact that wax deep in the canal is not easy to discover. The first statement passes over the very common form of deafness of gradual onset, due to obstruction of the Eustachian tube, in which it is most important that time should not be wasted on experiments with apparatus instead of seeking early treatment In spite of these and a few similar faults, the book may be read with profit by deaf people before seeking the aid of appliances pear-shaped, the stalk of the pear representing the ureter, which becomes anterior to the spine at the level of the fourth lumbar vertebra It is important to remember this relationship of the pelvis to the vertebræ when differentiating between shadows in the renal area In a lateral view the shadow of a renal calculus will lie on the shadow of the vertebræ, except in the case of a large stone or a collection of stones with associated enlargement of the kidney, when it may be anterior to the vertebræ

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[1] Deafness Explained. By C M P Balbi A.C G I, A.M I E E. With a foreword by Lord Charnwood London: John Bale, Sons, and Danielsson 1927 Pp 45 1s. net

Identification of Stones

As a result of the greatly improved technique of radiography, gall-stones may now be demonstrated on the X ray plate and may have to be distinguished from other opacities in the renal area The questions, therefore, which have to be settled in the interpretation of a shadow in the renal area are (1) is the shadow intra- or extra-renal? and (2) what is its exact position? A pyelogram will assist us to answer both these questions In many cases there is no element of doubt as to the character and position of a shadow in the renal area, but sometimes, in spite of the data supplied by the clinical history, and in spite of cystoscopy and catheterisation of the ureters, the ordinary radiogram cannot be interpreted with confidence When a stone of any appreciable size is in the kidney, a variable degree of dilatation of the entire pelvis or individual calyx may be demonstrated in the pyelogram, the changes may be the result of mechanical obstruction or inflammatory reaction, or a combination of both It must be remembered, however, that a stone may produce little or no apparent deformity Moreover, a stone in the pelvis may block the entrance of the opaque solution, so that there will be a ureterogram but no pyelogram

Here may be mentioned a point of considerable importance in pyelography for cases of suspected renal calculi—namely, the staining of stones

Uric acid calculi produce a particularly feeble shadow in a radiogram, and, as I have already said, the pyelogram may not reveal the condition, but if the opaque solution is withdrawn and a further picture taken after the lapse of, say, half an hour, there will be no difficulty in at once recognising the presence of the calculus

In a lateral radiogram the shadow of a gall-stone lies well in front of the vertebræ and, more often than not, on a lower plane than a renal shadow In cases of doubt a pyelogram settles the point Not infrequently there is difficulty in distinguishing between calcareous mesenteric or lumbar glands and a stone in the pelvis or ureter The relation of the ureter to the opacities can be shown by the introduction of an opaque catheter into the ureter, and a pyelogram will demonstrate that the shadows are extra-renal If there is still an element of doubt, a lateral pyelogram will indicate that the opacities are outside the urinary tract

Hydronephrosis and Nephroptosis

The diagnosis of a large hydronephrosis is not usually difficult, but there is a period in its development when the kidney is not obviously enlarged and may not even be felt; it is in this early stage that it is so important to arrive at the diagnosis before the kidney becomes the seat of sepsis, and irreparable damage has been done

It is in this early stage, when there are symptoms suggesting distension of the renal pelvis, that pyelography is of such value. In early hydronephrosis there is broadening and flattening of the major calyces, and loss of the terminal irregularities of the minor calyces

Congenital hydronephrosis is by no means an uncommon condition, and one frequently giving rise to hæmaturia. It not infrequently happens that an early case of hydronephrosis, producing hæmaturia, can be diagnosed by no other methods of investigation Probably bleeding diagnosed as "Essential hæmaturia" is often due to hydronephrosis, and if pyelography is performed, this error in diagnosis would be discovered and the appropriate treatment adopted In these cases of so-called essential hæmaturia, the demonstration of a normal pelvis by pyelography is of very definite value, excluding, as it does, many of the causes of blood in the urine Pyelography is undoubtedly useful in determining the cause of hæmaturia in cases where the ætiological factor cannot be otherwise ascertained

Nephroptosis usually presents no particular difficulty in diagnosis, but it is important to know whether or not the ureter is associated with kinking A pyelogram will show this In those cases where a bilateral pyelogram demonstrates a bilateral nephroptosis, unassociated with kinking of the ureter and with no resulting hydronephrosis, I think that there is a very definite doubt as to the advisability of operative interference.

Neoplasms and Tuberculosis

Clinically, the differential diagnosis of a neoplasm, pyonephrosis, and hydronephrosis may be extremely difficult, especially when an impassable obstruction is found in the upper urinary tract, if such is the case, although none of the injected solution enters the pelvis, the outline of the ureter is still of value, for a dilated ureter from ureteritis suggests an enlargement of the kidney from infection.

With the outline of a small ureter below the tumour, a neoplasm may be inferred, the ureter being atrophied from disuse

In a large percentage of cases of new growth of the kidney, pyelography will show a recognisable change in the renal pelvis There are occasions, however, when this method will not be of use except in a negative sense I have in mind a sarcoma of the renal capsule which is not invading a calyx and is not palpable In such a case a radiogram taken after perirenal infiltration with oxygen may be of value, for an alteration, produced by the tumour, may then be seen in the contour of the kidney

In tuberculous disease of the kidney, cystoscopy and catheterisation of the ureters will often give the diagnosis or confirm suspicions, but here again it is sometimes necessary to rely on pyelography

To illustrate this point I will refer to three recent cases The first was that of a man, aged 32, who for several months had been troubled with pain in the back, this he attributed to a motor-cycle accident which he had nine months before I saw him. He also stated that on one occasion he noticed blood in his urine I submitted him to the usual routine investigation Cystoscopy was negative, I catheterised both ureters, and the urine from each kidney revealed nothing I then took a pyelogram, and the resulting picture left no doubt in my mind that there was a tuberculous infection of the left kidney A nephrectomy was performed, and the pathological report confirmed the clinical diagnosis

The other two cases were very similar from the history, except that in one the cystoscopic picture showed, according to my notes, "a granular type of cystitis, suggestive of, but not typical of, a tuberculous infection" In all three the urine was negative for tubercle bacilli, and in all three the diagnosis, as suggested by pyelography, was confirmed at operation

These cases proved to me the extreme value of pyelography as an aid in arriving at an early and accurate diagnosis Especially is this important in cases of tuberculous disease of the kidney, when we realise these patients not infrequently complain merely of frequency of micturition, the duration of which may only be a matter of weeks Much valuable time may be saved, and thereby the patient's chances of recovery enhanced, by a speedy decision as to the correct line of treatment to adopt

Technique of Pyelography.

I think it is certainly preferable that pyelography should be carried out without general anæsthesia whenever possible This enables the patient to indicate to the surgeon when the renal pelvis is full Distension of the pelvis causes pain, which will increase to a colic if distension is continued

Personally I like to screen the patient and watch the fluid filling up the pelvis, so that I do not have to rely entirely upon the patient for information as to when the pelvis is full, for one pelvis may not be as sensitive as another

The fluid in the renal pelvis should be withdrawn before introducing the solution, unless this is done, inconvenience may be caused by the dilution of the opaque solution. It is advisable to use an opaque catheter of moderate size so as not to fill the lumen of the ureter completely, this is an additional safeguard against over-distension of the pelvis. It is well to avoid injecting the fluid when the eye of the catheter is in a calyx, for if this occurs, the pelvis may be only partly filled when pain is complained of, owing to distension of the calyx In certain cases it is an advantage gradually to withdraw the catheter and inject the solution so that the course and contour of the ureter may be seen At the same time it should be borne in mind that the ureter, being freely movable, can easily be made to follow an unusual course by injecting fluid when the tip of the catheter is low down in the ureter

When the exposure has been made the solution should be removed from the pelvis From the patient's point of view this obviates any unnecessary discomfort

Conclusion

Undoubtedly the most valuable possession we have for investigating the ætiological factors of disease are experience and careful observation, and interpretation of the patient's signs and symptoms At the same time, when we have in our hands such an accurate, safe, and reliable method of investigation as pyelography, there should be no hesitation to employ it

It gives me the greatest pleasure to acknowledge my indebtedness to Mr A E Webb-Johnson for his constant encouragement and advice at all times, and to Dr F G Nicholas my thanks are due for his valued coöperation in the X ray department of the Middlesex Hospital

THE COMMONWEALTH FUND

Mrs Stephen V Harkness, who died in New York last year, endowed a committee with a large sum of money to be administered for the "welfare of mankind," under no restrictions whatever The story of what has been made of this remarkable opportunity is long, intricate, and uniformly fascinating, and is told in the annual reports of the Commonwealth Fund, of which the eighth has just been issued. The executors of the Fund selected half-a-dozen fields, decided exactly what they were going to do, and set about it with quiet persistence The key-note of their efforts is constructive education, and, realising that no organisation was of the smallest use unless it was an integral part of the community among which it worked, they have devoted themselves mainly to sowing in the best soil they could find their special knowledge of the sciences of mental and physical health, to inducing communities to make their own executive machinery, to instructing them in its maintenance and expansions, and to training a large body of disciples to carry on and extend their work

In 1922 they began a five-year programme of national instruction in the principles of child guidance and mental hygiene Starting in Fargo, North Dakota, they established demonstration centres in two large towns and two rural districts in various States with the object of "translating into effective local action the available knowledge of measures which spell freedom and inspiration for the normal, healthful growth of children of all ages, as an integral part of a well-developed general health programme" The communities have all, as a result of these demonstrations, greatly increased their public health activities, and their example will undoubtedly stimulate others The aim of the Fund is always to combine and unify existing protective and educational measures into a practical working programme. Next year this demonstration work will be superseded by the establishment of an Institute of Child Guidance for training psychiatrists, psychologists, and psychiatric social workers in practical child welfare work

The Division of Education and Legal Research allots 20 fellowships annually to British university graduates to enable them to study education at an American university, and acquire a first-hand knowledge of social conditions in the States This interchange of educational ideas is a decided step towards mutual understanding between the two countries The same division also publishes many sociological works, and studies administrative law and its practice — a very wide and difficult field in a country with numerous self-governing States The Rural Hospitals Division assists country districts to build and maintain hospitals, and has laid down a programme for two every year

The Fund is doing useful work in Austria, and it is a testimony to the soundness of its policy that the American personnel numbers only three, all the rest of the organisation being native The various activities include child health centres, tuberculosis stations, school hygiene institutes, and health education generally In an enterprise of this kind everything depends on the personality of the directors, and the surest guarantee for the permanence of the work is the continual and thorough training of potential successors to the present Committee that takes place as part of the execution of the Fund's objects

THE AJAX PORTABLE ARC LAMP

The lamp which has been submitted to us is designed as a portable source of ultra-violet radiation to be taken to the patient's house and used on the ordinary house mains Such a lamp must obviously be of reasonable size and weight, simple to use, and capable of running on any voltages direct or alternating The instrument submitted consists of a strong metallic case, about the size and shape of a large attaché case, heavily nickel-plated, which contains a small automatic arc and the necessary resistances The arc itself is permanently mounted at one end of the case and is not intended to be removed when in use This makes for safety in handling and for simplicity, as the minimum of fitting-up is required The end facing the arc forms a sliding panel which can be completely withdrawn when a wide-angled beam, suitable for the irradiation of a large area, is required For localised treatment, the sliding front carries a diaphragm and a water-cooled chamber fitted with rock crystal windows The water cooling is effected by a glass reservoir on the top of the instrument convection currents causing the water to circulate between the reservoir and the water chamber This simple arrangement was found to be quite effective for the short period required—in ten minutes the temperature of the water had risen only 7° C, whilst the quartz lens, though warm, was not uncomfortably hot

The arc is formed between cored carbons, either tungsten-cored or so-called polymetallic, the latter being cored with a mixture of metals designed to give intense radiation in the region of most therapeutic valu [illegible]

instrument three knife switches are fitted One is th
switch for the arc, the second has two positions corresp
to main voltages of 220 and 110 respectively The i
ment is sufficiently flexible to allow of its use on
voltages varying within 10 per cent of these values
third switch allows the use of the magnetic blower w
fitted to the arc, this is an electro-magnet which for
arc forward in the form of a flame when in use and t
increases the output of radiation The main switch h
contacts, one controlling the arc in the case and the
switching the current to a second arc which is moun
a hood-shaped reflector carried at the end of an adj
arm attached to the top of the case This arc can b
with a rock crystal lens applicator as described abov
in this case, no cooling device is fitted, the heat not b
intense as for the internal type

The instrument takes about eight ampères of curre
was found on test to give a very steady output T
tended to get hot during a prolonged run but, owing
efficient ventilation of arc and resistances, no dama
detected. The radiation from the bare arc and als
it had passed through the applicators was examined
Hilger quartz spectroscope The spectra extended a
2100 Angstrom units and the quartz lenses were fo
be transparent over the whole range The polym
carbons gave a spectrum of closely packed line
practically the whole range A few minor points of de
e g, the disposition of the switches on the case, call fo
modification, but they are by no means important a
already receiving the attention of the manufacturers

In general, the Ajax lamp seems to be very well de
for its purpose—namely, to provide a portable sou
ultra-violet rays which can be used over a wide ra
varying conditions and for a number of different pu
It may be obtained from the manufacturers, Ajax
117, Central-street, E C 1

THE SCANDAL OF HOMEWORK

Our attention has been called to an article in t
issue of the *Teachers' World* which describes, with d
evidence in support of the view, the possible defeat
true purpose of education by the intolerable burden
the homework set for children is becoming The educ
journal is definite in its statement that "the r
system of excessive homework is fast becoming a
to the physical and mental welfare of the adole
We do not know of any medical evidence which wou
out to the letter this formidable indictment, but,
Teachers' World will refer to the subject in its fol
issues, there may be more to be said on this groun
the futility as well as exhausting nature of the k
homework which apparently is being set, there can
doubt, when we read the examples set out As mu
expected, the teacher of mathematics appears to
worst offender in setting unsuitable and excessive hom
Here it seems that the sort of problems that child
their early teens are asked to deal with requir
monotonous calculation which, instead of leading to
mathematical outlook, and so providing a basis upon
advanced mathematical work can be built, can only a
in disgusting the pupil with the whole study The l
of mathematics can be made highly interesting
a fascinating intellectual exercise while it deals wi
coldest facts of life, it is deplorable that the reverse
so often occur through the unintelligent approach of te
to their subject

PARENTERAL MERCURIC POISONING

The administration by the mouth of sodium hypos
(that is to say, $Na_2S_2O_4$ in the strict chemical sense, n
thiosulphate commonly known as "hypo") has been
by E Hesse[1] to be a fairly trustworthy antidote to co
sublimate similarly administered Of 17 dogs re
lethal doses of sublimate, 13 recovered when this sub
was administered The action is probably partly a re
of the soluble salt to the metal and partly a formatio
insoluble sulphide As an industrial poison mer
usually taken through the lungs, and could best be t
by intravenous injections Sodium hyposulphite
has a reducing action on oxyhæmoglobin, and Hess
recently experimented with various compounds cont
sulphur, and as a result of his experiments recommen
use of the thioacetates Of these the strontium salt a
to be the most satisfactory for administration Inje
of at least 1 g a day should be continued for one o
weeks This use of sulphur compounds, which app
act by forming the extremely insoluble mercuric sul
is interesting, and is worthy of consideration by thos
have the medical care of workers dealing with merc
mercurials

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[1] Arch Exp Path Pharm, 1926, iii, 266–278